SD431.5
A26 S55

TIMBER MANAGEMENT PLAN

REGION 6

SIUSLAW NATIONAL FOREST

SIUSLAW WORKING CIRCLE

PLAN PERIOD July 1, 1965 to June 30, 1975

PLAN APPROVED November 10, 1966

U.S. DEPARTMENT OF AGRICULTURE

FOREST SERVICE

REGION 6

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TIMBER MANAGEMENT PLAN

SIUSLAW NATIONAL FOREST

REGION 6 - OREGON

Prepared and submitted by:

Robert H. Mealey : Date 11/17/66

Russell K. Yahnke : Date 9/16/66

Approved By: Spencer T. Blaine : Date 9/19/66
Forest Supervisor

Reviewed By: FJP 9/30/66

Regional Office

Division of Timber Management T.L.K. : Date 11/8/66

Multiple Use Coordinator H. L. Pratt : Date 10/19/66

Approved By: J. Herbert Stone : Date 11/10/66
Regional Forester

SET

PREFACE

The purpose of this plan is to define the basic objectives for management and utilization of the timber resources on the Siuslaw National Forest. The plan has been prepared in accordance with applicable current mutiple use guides and plans, outlined in the Forest Service Manual 2121 and multiple use coordinating instructions in FSM 2110 and FSM 2405 and multiple use policies covered in FSM 2410.03.

Because the Siuslaw is well supplied with highly valuable extensive timber stands which are in considerable demand by industry, timber tends to assume importance over other less measurable resources. Coordination of all the various resource uses must be accomplished in implementing this plan to achieve a sound land management program which will produce the greatest public services. The objective of this plan is to obtain the optimum sustained yield of timber products from the Forest consistent with all resource uses.

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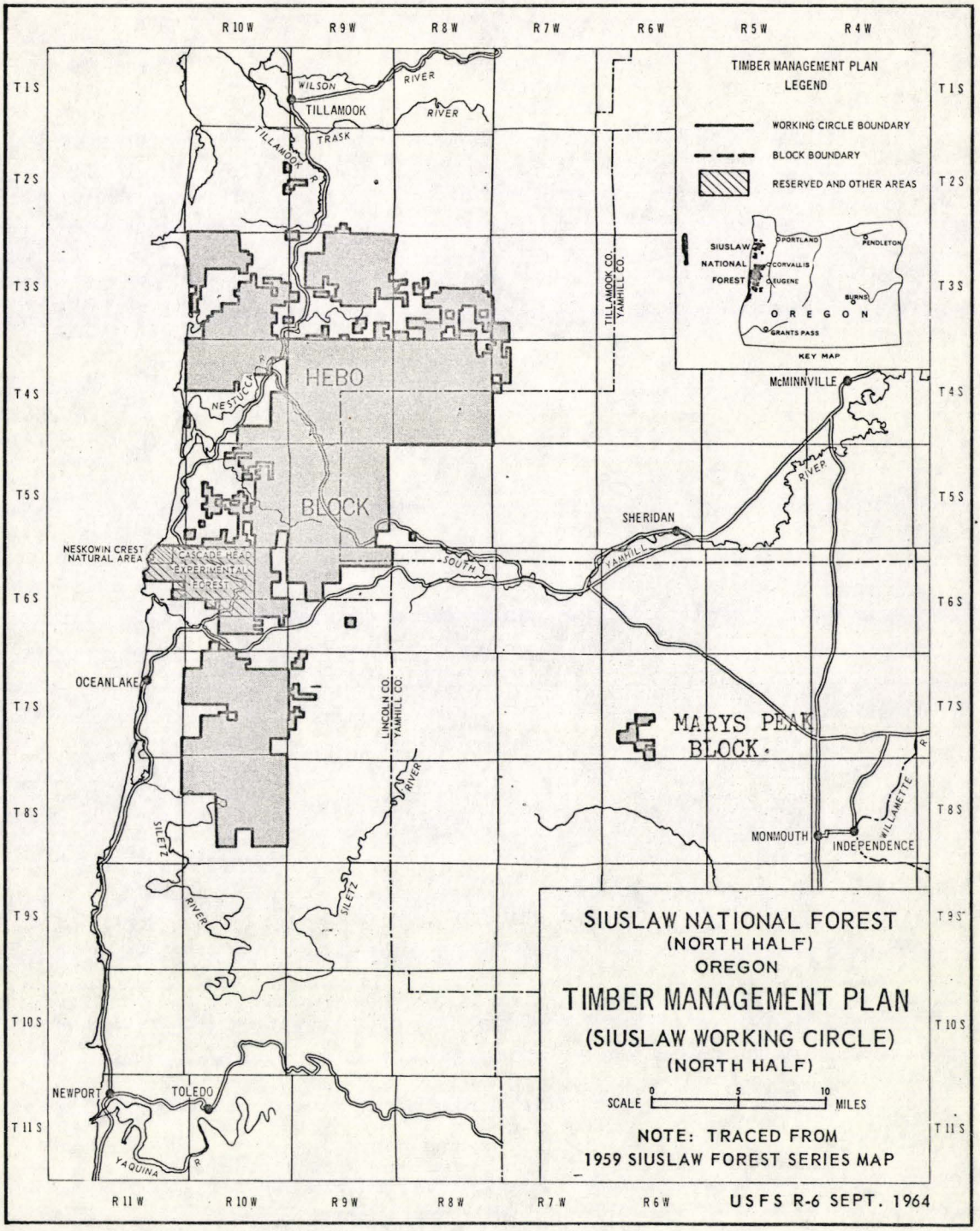
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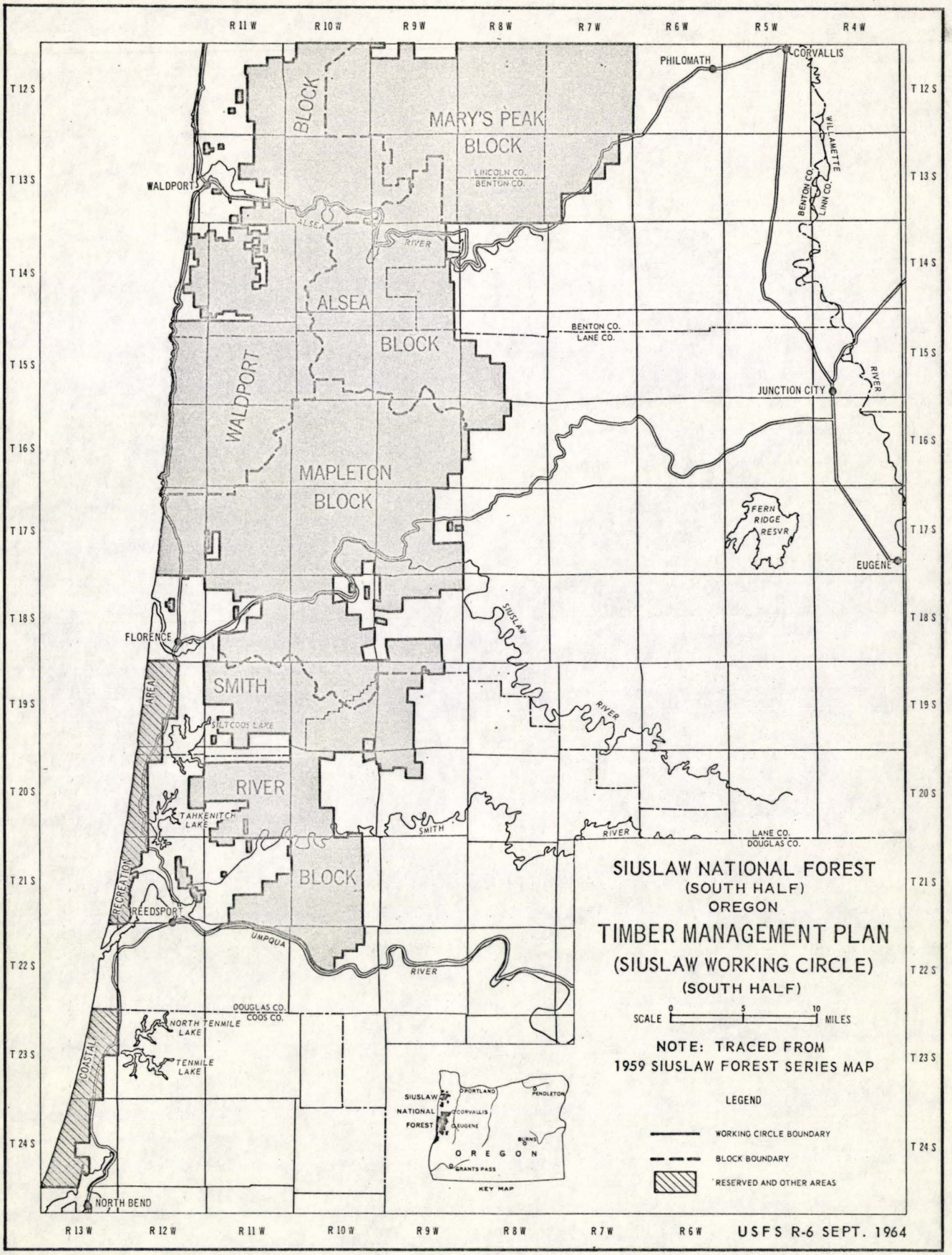
TIMBER MANAGEMENT PLAN
LEGEND
WORKING CIRCLE BOUNDARY
BLOCK BOUNDARY
RESERVED AND OTHER AREAS
SIUSLAW NATIONAL FOREST
PORTLAND
PENDLETON
CORVALLIS
EUGENE
BURNS
OREGON
GRANTS PASS
KEY MAP
WILSON RIVER
TILLAMOOK
TILLAMOOK RIVER
TRASK
TILLAMOOK CO.
YAMHILL CO.
NESTUCCA R.
HEBO
BLOCK
McMINNVILLE
SHERIDAN
YAMHILL RIVER
SOUTH
NESKOWIN CREST NATURAL AREA
CASCADE HEAD EXPERIMENTAL FOREST
OCEANLAKE
LINCOLN CO.
YAMHILL CO.
MARYS PEAK BLOCK
SILETZ RIVER
MONMOUTH
INDEPENDENCE
WILLAMETTE R.
NEWPORT
TOLEDO
YAQUINA R.
SIUSLAW NATIONAL FOREST
(NORTH HALF)
OREGON
TIMBER MANAGEMENT PLAN
(SIUSLAW WORKING CIRCLE)
(NORTH HALF)
SCALE 0 5 10 MILES
NOTE: TRACED FROM
1959 SIUSLAW FOREST SERIES MAP
USFS R-6 SEPT. 1964



SIUSLAW NATIONAL FOREST
(SOUTH HALF)
OREGON

TIMBER MANAGEMENT PLAN
(SIUSLAW WORKING CIRCLE)
(SOUTH HALF)

SCALE 0 5 10 MILES

NOTE: TRACED FROM
1959 SIUSLAW FOREST SERIES MAP

LEGEND

- WORKING CIRCLE BOUNDARY
- BLOCK BOUNDARY
- RESERVED AND OTHER AREAS

SUMMARY OF SIUSLAW WORKING CIRCLE

I. Regulated Cuts

Timber Key Value

Harvest Cut	3,676 Acres
Intermediate Cut	6,600 Acres*

Landscape Management

Harvest Cut	221 Acres
Intermediate Cut	500 Acres*

Total Minimum Volume Control	348.0 MM board feet
Total Maximum Volume Control	382.0 MM board feet

*These acreages may be exceeded but not decreased.

II. Unregulated Cuts

Mixed species and hardwoods

Cut Objective	2,631 Acres

III. Summary of Land Resources

	Acres	
1.	619,137	Statistical grand total of National Forest land
2.	- 375	Net adjustment due to irregular sections, etc.
3.	618,762	Actual ground total of National Forest land.
4.	- 28,126	Cascade Head Experimental Forest and sand dunes.
5.	590,636	Total National Forest land available
6.	6,547	Non-forest and non-commercial
7.	6,807	Landscape management categories 1 and 2, unregulated
8.	577,282	Commercial forest for regulated cuts
9.	51,796	Landscape management category 3
10.	525,486	Total commercial, timber key value
11.	90,468	Mixed species, timber key value
12.	67,370	Pure hardwoods, timber key value
13.	367,648	Pure conifers, timber key value

SOFTWOODS (Pure Conifers & Mixed Species)

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

PERIODIC TIMBER MANAGEMENT PLANNING REPORT

REGION [2-3]	FOREST [4-5]	WORKING CIRCLE [6]
06	12	1
CLASS [7]	**STATE [8-9]**	**INVENTORY YEAR [10-11]**
1	36	64

NET INVENTORY AND NET PERIODIC ANNUAL GROWTH ON NONRESERVED COMMERCIAL NATIONAL FOREST LAND

BLOCK A--CARD CODE 1

	SAWTIMBER	OTHER PRODUCTS	GROWING STOCK
1. INVENTORY: a. Local Scale *(100 MBF)*	[12-17] 218179		
b. Int. ¼" Rule *(100 MBF)*	[18-23] 272724		
c. Cubic Measure *(100 MCF)*	[24-29] 037641	[30-34] 03914	[35-40] 041555
d. Stocked Measure *(100 Cds.)*		[41-45] 48925	
2. NET GROWTH: a. Local Scale *(100 MBF)*	[46-50] 02194		
b. Cubic Measure *(100 MCF)*	[51-55] 00344	[56-59] 0036	[60-64] 00380
3. MORTALITY: Cubic Measure *(100 MCF)*	[65-69] 00128	[70-73] 0013	[74-78] 00141

AREA AND INVENTORY ON PRODUCTIVE RESERVED AND COMMERCIAL NATIONAL FOREST LAND

BLOCK B--CARD CODE 2

	PRODUCTIVE RESERVED	UNREGULATED	MODIFIED LANDSCAPE	NON-MODIFIED
1. AREA *(100 Acres)*	[12-16] 00007	[17-21] 01000	[22-26] 00586	[27-32] 003676
2. SAWTIMBER *(100 MBF)*	[33-37] 00260	[38-42] 22976	[43-47] 21932	[48-53] 173271
3. GROWING STOCK *(100 MCF)*	[54-58] 00050	[59-63] 04853	[64-68] 04087	[69-74] 032615
4. OPTIONAL SPACE	SPECIFY	[75-77] 000	SPECIFY	[78-80] 000

REGULATED ALLOWABLE ANNUAL CUT AND UNREGULATED MATERIAL AVAILABLE ANNUALLY

BLOCK C--CARD CODE 3

	AREA *(100 Acres)*	SAWTIMBER *(100 MBF)*	OTHER PROD. *(100 CDS)*
1. INTERMEDIATE	[12-15] 0094 1/	[16-19] 1173	[20-23] 0000
2. SALVAGE	[24-26] 000	[27-29] 000	[30-32] 000
3. REGENERATION			
a. Group, Patch, Strip, Stand	[33-35] 039	[36-39] 2524	[40-43] 0000
b. Shelterwood, Seedtree			
(1) Preparatory, Seed	[44-46] 000	[47-49] 000	[50-52] 000
(2) Removal	[53-55] 000	[56-58] 000	[59-61] 000
c. Selection	[62-64] 000	[65-67] 000	[68-70] 000
4. UNREGULATED		[71-74] 0430	[75-78] 0000

	DATE	SIGNATURE	TITLE
PREPARED	3/29/67	/s/Frank E. Price, Jr.	Forester
AUDITED	6/22/67	/s/ Vincent S. Cegelka	Forester

2400-26 (6/64) 1/ Average for the plan period

Revised 6/22/67

GPO 875-637

HARDWOODS (Pure Alder)

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

PERIODIC TIMBER MANAGEMENT PLANNING REPORT

REGION [2-3]	FOREST [4-5]	WORKING CIRCLE [6]
06	12	1
CLASS [7]	**STATE [8-9]**	**INVENTORY YEAR [10-11]**
2	36	64

NET INVENTORY AND NET PERIODIC ANNUAL GROWTH ON NONRESERVED COMMERCIAL NATIONAL FOREST LAND

BLOCK A--CARD CODE 1

	SAWTIMBER	OTHER PRODUCTS	GROWING STOCK
1. INVENTORY: a. Local Scale *(100 MBF)*	[12-17] 00 63 60		
b. Int. ¼" Rule *(100 MBF)* a x 1.25	[18-23] 00 79 50		
1723 - (1723 x .172) x .930 = p. 13 stats c. Cubic Measure *(100 MCF)*	[24-29] 00 13 27	[30-34] 00 39 6	[35-40] 00 17 23
d. Stocked Measure *(100 Cds.)*		[41-45] 04 95 0	
2. NET GROWTH: a. Local Scale *(100 MBF)*	[46-50] 00 12 9		
b. Cubic Measure *(100 MCF)*	[51-55] 00 02 1	[56-59] 00 06	[60-64] 00 02 7
3. MORTALITY: Cubic Measure *(100 MCF)*	[65-69] 00 00 5	[70-73] 00 01	[74-78] 00 00 6

AREA AND INVENTORY ON PRODUCTIVE RESERVED AND COMMERCIAL NATIONAL FOREST LAND

BLOCK B--CARD CODE 2

	PRODUCTIVE RESERVED	UNREGULATED	MODIFIED LANDSCAPE	NON-MODIFIED
1. AREA *(100 Acres)*	[12-16] 00 00 0	[17-21] 00 67 4	[22-26] 00 00 0	[27-32] 00 00 0 0
2. SAWTIMBER *(100 MBF)*	[33-37] 00 00 0	[38-42] 06 36 0	[43-47] 00 00 0	[48-53] 00 00 0 0
3. GROWING STOCK *(100 MCF)*	[54-58] 00 00 0	[59-63] 01 72 3	[64-68] 00 00 0	[69-74] 00 00 0 0
4. OPTIONAL SPACE	SPECIFY	[75-77] 0 0 0	SPECIFY	[78-80] 0 0 0

REGULATED ALLOWABLE ANNUAL CUT AND UNREGULATED MATERIAL AVAILABLE ANNUALLY

BLOCK C--CARD CODE 3

	AREA *(100 Acres)*	SAWTIMBER *(100 MBF)*	OTHER PROD. *(100 CDS)*
1. INTERMEDIATE	[12-15] 0 0 0 0	[16-19] 0 0 0 0	[20-23] 0 0 0 0
2. SALVAGE	[24-26] 0 0 0	[27-29] 0 0 0	[30-32] 0 0 0
3. REGENERATION			
a. Group, Patch, Strip, Stand	[33-35] 0 0 0	[36-39] 0 0 0 0	[40-43] 0 0 0 0
b. Shelterwood, Seedtree			
(1) Preparatory, Seed	[44-46] 0 0 0	[47-49] 0 0 0	[50-52] 0 0 0
(2) Removal	[53-55] 0 0 0	[56-58] 0 0 0	[59-61] 0 0 0
c, Selection	[62-64] 0 0 0	[65-67] 0 0 0	[68-70] 0 0 0
4. UNREGULATED		[71-74] 0 1 3 1	[75-78] 0 0 0 0

	DATE	SIGNATURE	TITLE
PREPARED	3/29/67	/s/ Frank E. Price, Jr.	Forester
AUDITED	6/22/67	/s/ Vincent S. Cegelka	Forester

2400-26 (6/64)
Revised 6/22/67

GPO 875-637

CUTTING BUDGET AND CONTROL RECORD

Regular Cut
Harvest, Timbe

Forest Siuslaw — Ranger District All — Working group Key Value
Working circle Siuslaw — Block 1/ — Regulated or estimated 3,676 acres (est.
Plan period F.Y. 1966-1975 — available annual cut volume 238.9 MM)
Unit of measure MM bd.ft., Scribner
Under contract, effective
date of plan 589.5 MM

Fiscal year:		Regulated or available cut: Annual	Regulated or available cut: Cumulative	Planned sell: Annual	Planned sell: Cumulative	Planned cut: Annual	Planned cut: Cumulative	Actual sell: Annual	Actual sell: Cumulative	Actual cut: Annual	Actual cut: Cumulative
1966	Volume			274.7	274.7	411.9	411.9				
	Area	3,676	3,676	4226	4226	6337	6337				
1967	Volume			256.4	531.1	348.0	759.9				
	Area	3,676	7,352	3945	8171	5354	11691				
1968	Volume			247.7	778.8	290.2	1050.1				
	Area	3,676	11,028	3810	11981	4465	16156				
1969	Volume			237.0	1015.8	243.0	1293.1				
	Area	3,676	14,704	3646	15627	3738	19894				
1970	Volume			228.9	1244.7	237.0	1530.1				
	Area	3,676	18,380	3522	19149	3646	23540				
1971	Volume			228.9	1473.6	228.9	1759.0				
	Area	3,676	22,056	3522	22671	3522	27062				
1972	Volume			228.9	1702.5	228.9	1987.9				
	Area	3,676	25,732	3522	26193	3522	30584				
1973	Volume			228.9	1931.4	228.9	2216.8				
	Area	3,676	29,408	3522	29715	3522	34106				
1974	Volume			228.9	2160.3	228.9	2445.7				
	Area	3,676	33,084	3522	33237	3522	37628				
1975	Volume			229.0	2389.3	228.9	2674.6				
	Area	3,676	36,760	3523	36760	3522	41150				

1/ Forest Supervisors will prepare and maintain this plan for each working circle or portion of each working circle within the National Forest. The District Ranger will maintain a corresponding record for the portion of the cut assigned to each block. The Forest Supervisor's record will be brought up-to-date annually from block records. The sum of block records must reconcile to working circle totals.

Instructions: Bring record up-to-date during July of new fiscal year. Send photocopy to Regional Office not later than August 1 of new fiscal year. Data presented for fiscal year should agree with cut and sold as shown on Quarterly Cut and Sold Report.

Form R6-2410-309 (6/64)

CUTTING BUDGET AND CONTROL RECORD

Regular Cut, Intermediate,

Forest Siuslaw Ranger District All Working group Timber Key Value

Working circle Siuslaw Block 1/ Regulated or estimated 6,600 - 13132 acres

Plan period F.Y. 1966-1975 available annual cut 84.1 - 114.4 MM 1/

Unit of measure MM board feet, Scribner

Under contract, effective date of plan 35.4 MM

Fiscal year:		Regulated or available cut: Annual	Regulated or available cut: Cumulative	Planned sell: Annual	Planned sell: Cumulative	Planned cut: Annual	Planned cut: Cumulative	Actual sell: Annual	Actual sell: Cumulative	Actual cut: Annual	Actual cut: Cumulative
1966	Volume			59.8	59.8	38.2	38.2				
	Area	8,438	8,438	4746	4746	3032	3032				
1967	Volume			73.4	133.2	49.7	87.9				
	Area	8,438	16,876	5825	10571	3944	6972				
1968	Volume			91.2	224.4	70.3	158.2				
	Area	8,438	25,314	7238	17809	5579	12555				
1969	Volume			106.6	331.0	105.4	263.6				
	Area	8,438	33,752	8460	26269	8365	20920				
1970	Volume			118.0	449.0	120.6	384.2				
	Area	8,438	42,190	9365	35634	9571	30491				
1971	Volume			119.5	568.5	132.0	516.2				
	Area	8,438	50,628	9485	45119	10476	40967				
1972	Volume			121.0	689.5	133.5	649.7				
	Area	8,438	59,066	9605	54724	10595	51562				
1973	Volume			122.5	812.0	132.8	782.5				
	Area	8,438	67,504	9725	64449	10540	62102				
1974	Volume			124.7	936.7	134.3	916.8				
	Area	8,438	75,942	9895	74344	10659	72761				
1975	Volume			126.5	1063.2	136.5	1053.3				
	Area	8,438	84,380	10040	84384	10833	83594				

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Instructions: Bring record up-to-date during July of new fiscal year. Send photocopy to Regional Office not later than August 1 of new fiscal year. Data presented for fiscal year should agree with cut and sold as shown on Quarterly Cut and Sold Report.

1/ 84.1 MM is the minimum that must be sold without increasing clearcutting above 238.9 MM
114.4 is the maximum that can be sold without reducing clearcutting below 238.9 MM

Form R6-2410-309 (6/64)

CUTTING BUDGET AND CONTROL RECORD

Forest Siuslaw — Ranger District All — Working group Harvest, Landscape Management

Working circle Siuslaw — Block 1/ -- — Regulated or estimated available annual cut 221 acres - 13.3 MM

Plan period F.Y. 1966 through F.Y. 1975 — Unit of measure MM bd.ft. Scribner

Under contract, effective date of plan 15.2MM

Fiscal year		Regulated or available cut: Annual	Regulated or available cut: Cumulative	Planned sell: Annual	Planned sell: Cumulative	Planned cut: Annual	Planned cut: Cumulative	Actual sell: Annual	Actual sell: Cumulative	Actual cut: Annual	Actual cut: Cumulative
19 66	Volume			10.1	10.1	6.2	6.2				
	Area	221	221	168	168	96	96				
1967	Volume			17.1	27.2	15.9	22.1				
	Area	221	442	269	437	265	361				
1968	Volume			18.1	45.3	17.6	39.7				
	Area	221	663	289	726	276	637				
1969	Volume			12.9	58.2	17.1	56.8				
	Area	221	884	221	947	274	911				
1970	Volume			10.0	68.2	12.6	69.4				
	Area	221	1,105	166	1113	210	1121				
1971	Volume			13.0	81.2	11.8	81.2				
	Area	221	1,326	213	1326	205	1326				
1972	Volume			13.3	94.5	13.3	94.5				
	Area	221	1,547	221	1547	221	1547				
1973	Volume			13.3	107.8	13.3	107.8				
	Area	221	1,768	221	1768	221	1768				
1974	Volume			13.3	121.1	13.3	121.1				
	Area	221	1,989	221	1989	221	1989				
1975	Volume			13.3	134.4	13.3	134.4				
	Area	221	2,210	221	2210	221	2210				

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Form R6-2410-309 (6/64)

CUTTING BUDGET AND CONTROL RECORD

Forest Siuslaw — Ranger District All — Working group Intermediate, Landscape Management

Working circle Siuslaw — Block 1/ —

Plan period F.Y. 1966 - F.Y. 1975

Regulated or estimated 500 - 1109 acres

available annual cut 11.7 - 13.2 MM

Unit of measure MM bd.ft. Scribner

Under contract, effective date of plan 0

Fiscal year		Regulated or available cut: Annual	Regulated or available cut: Cumulative	Planned sell: Annual	Planned sell: Cumulative	Planned cut: Annual	Planned cut: Cumulative	Actual sell: Annual	Actual sell: Cumulative	Actual cut: Annual	Actual cut: Cumulative
1966	Volume			7.1	7.1	0.8	0.8				
	Area	922	922	597	597	67	67				
1967	Volume			9.5	16.6	4.3	5.1				
	Area	922	1,844	798	1395	361	428				
1968	Volume			9.0	25.6	11.1	16.2				
	Area	922	2,766	756	2151	933	1361				
1969	Volume			10.9	36.5	9.0	25.2				
	Area	922	3,688	916	3067	756	2117				
1970	Volume			11.0	47.5	10.9	36.1				
	Area	922	4,610	924	3991	916	3033				
1971	Volume			11.5	59.0	11.0	47.1				
	Area	922	5,532	966	4957	924	3957				
1972	Volume			12.0	71.0	11.5	58.6				
	Area	922	6,454	1008	5965	966	4923				
1973	Volume			12.5	83.5	12.0	70.6				
	Area	922	7,376	1050	7015	1008	5931				
1974	Volume			13.0	96.5	12.5	83.1				
	Area	922	8,298	1092	8107	1050	6981				
1975	Volume			13.2	109.7	13.0	96.1				
	Area	922	9,220	1109	9216	1092	8073				

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Form R6-2410-309 (6/64)

CUTTING BUDGET AND CONTROL RECORD

Forest Siuslaw — Ranger District All — Unregulated Cutting Objectiv
Working circle Siuslaw — Block 1/ — Working group Mixed Conifers
Plan period F.Y. 1966 - F.Y. 1975 — Regulated or estimated Hardwood Types
available annual cut 2631 acres, 56.3 MM
Unit of measure MM bd.ft. Scribner
Under contract, effective
date of plan 11.9 MM

Fiscal year		Regulated or available cut: Annual	Regulated or available cut: Cumulative	Planned sell: Annual	Planned sell: Cumulative	Planned cut: Annual	Planned cut: Cumulative	Actual sell: Annual	Actual sell: Cumulative	Actual cut: Annual	Actual cut: Cumulative
1966	Volume			22.9	22.9	11.1	11.1				
	Area	2,631	2,631	1431	1431	694	694				
1967	Volume			23.0	45.9	12.7	23.8				
	Area	2,631	5,262	1438	2869	794	1488				
1968	Volume			23.5	69.4	20.5	44.3				
	Area	2,631	7,893	1469	4338	1281	2769				
1969	Volume			24.0	93.4	23.7	68.0				
	Area	2,631	10,524	1500	5838	1481	4250				
1970	Volume			24.0	117.4	24.0	92.0				
	Area	2,631	13,155	1500	7338	1500	5750				
1971	Volume			24.0	141.4	24.0	116.0				
	Area	2,631	15,786	1500	8838	1500	7250				
1972	Volume			24.0	165.4	24.0	140.0				
	Area	2,631	18,417	1500	10338	1500	8750				
1973	Volume			24.0	189.4	24.0	164.0				
	Area	2,631	21,048	1500	11838	1500	10250				
1974	Volume			24.0	213.4	24.0	188.0				
	Area	2,631	23,679	1500	13338	1500	11750				
1975	Volume			24.0	237.4	24.0	212.0				
	Area	2,631	26,310	1500	14838	1500	13250				

1/ Forest Supervisors will prepare and maintain this plan for each working circle or portion of each working circle within the National Forest. The District Ranger will maintain a corresponding record for the portion of the cut assigned to each block. The Forest Supervisor's record will be brought up-to-date annually from block records. The sum of block records must reconcile to working circle totals.

Instructions: Bring record up-to-date during July of new fiscal year. Send photocopy to Regional Office not later than August 1 of new fiscal year. Data presented for fiscal year should agree with cut and sold as shown on Quarterly Cut and Sold Report.

Form R6-2410-309 (6/64)

CUTTING BUDGET AND CONTROL RECORD

Unregulated Cutting
Cascade Head & Administrati

Forest Siuslaw — Ranger District All — Working group Cutting
Working circle Siuslaw — Block 1/ — Regulated or estimated varying to meet available annual cut research needs
Plan period F.Y. 1966 - F.Y. 1975
Unit of measure MM bd.ft. Scribner
Under contract, effective date of plan 0.9 MM

Fiscal year:		Regulated or available cut: Annual	Regulated or available cut: Cumulative	Planned sell: Annual	Planned sell: Cumulative	Planned cut: Annual	Planned cut: Cumulative	Actual sell: Annual	Actual sell: Cumulative	Actual cut: Annual	Actual cut: Cumulative
19__	Volume										
	Area										
19__	Volume										
	Area										
19__	Volume										
	Area										
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Form R6-2410-309 (6/64)

V. Cutting Rates

The overall policies governing cutting rates are found in the Forest Service Manual - 2415.4. This plan is computed on an area regulation basis with volume yield as a check. Cut categories are dependent on types of cutting and Multiple Use classifications.

Multiple Use classifications are: timber key value areas which include pure conifer, mixed species and pure hardwood types; landscape management areas which include Category 1 and 2 occupancy areas and Category 3 travel influence zones (FSM 2405.12, 1965); and other unregulated areas which include Cascade Head and the sand dunes.

a. Chargeable Cuts. All timber harvested from the following cut categories is chargeable whether live or dead:

Timber Key Value (Pure Conifer)

All Regeneration Cuts (Clearcut, Shelterwoods)
All Intermediate Cuts

Landscape Management Category 3 (FSM 2405.12)

All Regeneration Cuts (Clearcut, Shelterwoods)
All Intermediate Cuts

Charging of cutting will be separate and non-interchangeable by cut categories.

b. Non-chargeable Cuts. All timber harvested from the following areas is non-chargeable regardless of type of cutting:

Mixed Species and Pure Hardwoods, Timber Key Value

Includes both conifer and hardwood timber in these types.

Other Unregulated

Includes Cascade Head Experimental Forest, the sand dunes, and Landscape Management Category 1 and 2 areas. (FSM 2405.12)

c. Allocation by Blocks. The chargeable and non-chargeable cuts will be allocated to ranger districts in blocks by the Forest Supervisor as a FSM Forest supplement. These allocations will be subject to review and revision as found necessary by the Forest Supervisor.

VI. Plan Period and Revision of the Plan

The effective date of this plan is July 1, 1965 (Fiscal Year 1966). The Forest is scheduled for reinventory in Fiscal Years 1974 and 1975 (FSM 2413.2). Replanning is scheduled for Fiscal Year 1976. Upon the effective date of the new plan this plan shall be terminated.

FOREST DESCRIPTION

SIUSLAW NATIONAL FOREST

FOREST DESCRIPTION

The Siuslaw National Forest is located along the central portion of the Oregon Coast Range. The Forest extends northward from approximately Coos Bay to just south of Tillamook and eastward from the Pacific Ocean to the east slopes of Marys Peak. There is a total of 618,762 acres of National Forest land (619,137 statistical acres) with portions in Tillamook, Yamhill, Lincoln, Polk, Benton, Lane, Douglas and Coos Counties of Oregon. The principal drainages with tributaries on National Forest land are the Nestucca, Salmon, Big Elk, Alsea, Siuslaw, Smith and Umpqua Rivers.

Elevations range from sea level to 4,097 feet, the summit of Marys Peak. Topography is irregular, broken and often dissected by many small canyons. In general the topography becomes steeper and rougher as one proceeds toward the south end of the Forest. Some gently rolling land occurs on ridges, benches and along the larger streams throughout the Forest.

I. Soils

Soils on the Forest are, in general, loams, clay loams and clays which have resulted from the weathering of sandstone or volcanic rock formations. Some extremely sandy soils have formed in sand deposits along the coast. Most of the soils are moderately deep, but range from a foot or two on ridge tops and in very steep areas, to ten to twenty feet deep on gently rolling upland areas.

To date the Soil Mantle Survey study for the Forest, and the Alsea Basin Soil and Vegetation Survey have been completed. The Benton County Soil Survey study is now in progress and should be completed in 1966. These studies are of considerable value in understanding and managing the soils found on the Siuslaw.

II. Climate

The climate of the Forest is generally mild. Daytime temperatures usually range between 40 and 50 degrees during the winter and between 70 and 80 degrees during the summer. Occasional short periods of below freezing temperature occur during the winter months in most years. Likewise the temperature reaches up to 100 degrees for short periods during the summer months of some years. Precipitation is abundant, ranging from 50 to 120 inches per year and is mostly in the form of rain. Some snow occurs during most years on the highest ridges and peaks. The area is characterized by frequent rains and much cloudiness from about the middle of September through the middle of June. Moist marine air and morning fog are common during the remainder of the year, especially near the coast.

III. Previous Management

The Siuslaw National Forest is made up of what was originally the Tillamook National Forest and part of the Umpqua National Forest. These areas were combined on July 1, 1908, by executive order, into the present basic forest. Numerous small exchanges and Weeks Law Purchases through the years, have adjusted the boundaries to their present locations. Use of the resources within the Forest dates back to its establishment, especially the supplying of local demands for lumber, shingles, piling, fence posts and fuel wood. Until recent years there has been little need for timber management plans on the Forest. A very large catastrophic fire in 1847 had wiped out most of the existing timber stands. Smaller localized fires in successive years also took their toll. Natural regeneration was good on about two-thirds of the Forest and quite spotty on the other third. Remaining stands of the original Forest were scattered and frequently inaccessible. Young timber was small and unwanted. Ample private timber was available and industry was not anxious to have much National Forest timber put on the market. Therefore, management was largely in a custodial state until the advent of World War II. In fact, until 1942, the actual cut on the Forest was usually under 10 MM board feet per year. Since 1942 the demand for National Forest timber has increased tremendously, especially as the supply of adjacent private timber dwindled. The necessity to salvage windfelled and subsequently beetle-infested timber resulting from a severe storm in 1951 added momentum to bring the Forest to the point of harvesting the full allowable cut. Salvage as the result of a second severe storm on October 12, 1962, put large volumes of timber on the market and forced overcutting during 1963, 1964 and 1965. The following tabulation shows the timber removed during 5-year periods beginning in 1923:

Year	Average Cut per Year	
	All Cuts, MM bd.ft.	Harvest Cut, Acres
1923-1925[1/]	9.8	
1926-1930	4.8	
1931-1935	0.5	
1936-1940	3.5	
1941-1945	25.2	
1946-1950[1/]	62.3	994 (1948-1950)
1951-1955	129.1	2,061
1956-1960	265.5	4,657
1961-1964	387.3	6,482

1/ Timber sales only, all cut types; does not include exchange cutting; 1923-1950 inclusive.

Little was known about the total timber resources on the Forest until a survey was made in 1933. In 1940 a management plan was prepared for the alder in the Nestucca Working Circle. This is the northern-most part of the Forest. This plan predicted a steady demand for red alder timber for furniture manufacture. This demand is only now beginning to come true. By 1948 the demand for conifer timber sales was picking up and "streamline" management plans were prepared for the Forest. These plans developed three working circles: the Hebo, the Waldport and the Mapleton. These plans were approved at the Regional level and provided the basis for the early management of the timber resources on the Forest. A new inventory was made in 1955 in cooperation with the Pacific Northwest Forest and Range Experiment Station. An interim allowable cut was established based on this data and a new management plan was prepared and approved in 1961. Management was based on the 1961 plan until July 1, 1965, the effective date of this plan.

IV. Ownership Pattern

The land ownership pattern is of considerable importance in managing the Siuslaw National Forest. Approximately 205,533 acres of private, state and county owned lands; and 28,878 acres of other federally owned lands are located within the Forest boundary. Many of these tracts are small and surrounded on two or more sides by National Forest land. All of the land within the Forest boundary was originally surveyed during the later 1800's. Several townships were resurveyed in the 1930's and brass-cap corners set. With the steep, broken topography, dense timber and vegetation found on the Forest; many corners have either been lost entirely or are extremely difficult to locate. Property line location is often difficult and expensive, even when good section corners are present. A half-mile per day for an average crew of 3 to 4 men is good production. Many sections require considerable subdivision in order to locate National Forest property lines. Often several miles must be run to locate a forty. Timber trespass cases have been frequent in the past, averaging about ten cases a year during the late 1950's, but have dwindled to about four cases per year in recent years. These cases are very time consuming and constitute an administrative problem.

V. Timber Resources

Following is a tabulation of the principal commercial tree species found on the Siuslaw:

Common Name	Scientific Name
Douglas-fir	Pseudotsuga menziesii
Western hemlock	Tsuga heterophylla
Sitka spruce	Picea sitchensis
Western redcedar	Thuja plicata
Red alder	Alnus rubra

The bulk of the timber stands present today originated on the lands which burned over during the last century. Therefore, they are usually 110 years or less in age and commonly called second-growth stands. There are two principal timber types on the Forest, the spruce-hemlock type and the Douglas-fir type. The spruce-hemlock type is found only in the coastal fog belt and seldom further inland than five or six miles. The remainder of the Forest is primarily Douglas-fir type. Some fine pure stands of noble fir are found on the summit of Marys Peak and non-commercial stands of lodgpole pine (or shore pine) are found growing in the sand dunes of the coast. Mixtures also occur. Douglas-fir and western redcedar are often found intermingled in the spruce-hemlock type and western hemlock and western redcedar are associates in the Douglas-fir type. Red alder is found both as pure stands and in mixtures through-out both types. White fir (Abies grandis) is sometimes found in association with Douglas-fir in the extreme easternmost parts of the Forest. In the scattered remnants of the old timber stands which escaped the fires, stands frequently contain high percentages of western hemlock and western redcedar in association with the Douglas-fir. This fact indicates that these species are the climax vegetation on most of the Forest. The second-growth stands, however, are often nearly pure Douglas-fir.

THE MANAGEMENT SITUATION

SIUSLAW NATIONAL FOREST

THE MANAGEMENT SITUATION

I. Social and Economic Relationships

The Siuslaw National Forest is located between the well populated Willamette Valley Area of Oregon and the Pacific Ocean. The Forest's immediate zone of influence includes the coastal communities of Tillamook, Lincoln City, Newport, Toledo, Waldport, Florence, Mapleton, Gardiner, Reedsport and North Bend; the valley communities of Dallas, Independence, Corvallis, Salem, Albany, Junction City and Eugene; in addition to several small rural communities within and adjacent to the National Forest boundary. This area contains a population of approximately 100,000 people. Actually the Forest's influence extends far beyond any immediate boundaries. All fifty states and several foreign countries are represented among thousands of visitors who come to the Forest each year for recreation and other purposes. Likewise forest products from the Siuslaw are shipped all over the United States as well as to several other countries. Populations within the Forest's immediate zone of influence are increasing and available home-sites on private land are being rapidly developed. Tourist facilities along the coast also are increasing. This trend can be expected to continue and increase during the next ten years.

There is some diversification of industry within the Forest's immediate zone of economic influence. Agriculture, fishing, construction and tourist trade are important to local economy, but the harvesting and manufacture of forest products and related services are by far the largest income producing elements. The log requirement map found in the Graphical Section (Pages 67 & 68) shows the annual needs of local mills. Some plants ordinarily operate at less than full capacity for portions of each year primarily due to difficulty of procuring logs and market fluctuations.

There are 17 municipal supply watersheds found on the Forest involving about 19,828 acres of National Forest land. These areas are under special agreements, which require advance approval of the Forest Supervisor before carrying out management activities in the area.

Forest products are moved to market by truck, railroad and water transportation. The Forest is, in general, easily accessible. Railroad and highway transportation routes are well located for forest users. State, county and National Forest roads form joining links to help complete the transportation system.

II. Transportation System

A basic requirement for good resource management is a well developed access road system. Without such a system the Forest remains largely in the custodial stage. Because of this need, much of the timber sale activity in the past has been designed to develop an adequate

transportation system as well as to manage the timber resource. During recent years the Forest has been constructing timber access roads at a rate exceeding 100 miles per year. This heavy development program has greatly improved the intensive management possibilities of the Forest. The following is a tabulation of the access road situation on the Forest as of June 30, 1965:

Existing roads (includes approx. 100 miles classed as primitive)	1,525.3 miles
Estimated to be constructed next 10 years	751.6 miles
Estimated total planned transportation system	3,780.1 miles

By the end of the current plan period the Forest should have approximately sixty-one percent of the total transportation system constructed.

Right-of-way problems are numerous and have been critical to management of some segments of the Forest. An aggressive right-of-way program in recent years (averaging about 70 cases per year) has solved many access problems. This program should taper off late in the plan period to a more or less routine administrative situation with little curtailment of resource management.

III. Erosion

The sandstone formations on the Forest have been tilted and uplifted from the ocean bottom during millions of years. Subsequent weathering and erosion has created a deeply incised dendritic drainage pattern and some fertile but narrow bottom lands. The degree of tilt of the sandstone layers plays an important role in erosion on the Forest. In the south part of the Forest the sandstone has very little tilt and there are steep slopes on both sides of ridges. In the central part of the Forest the tilt of the sandstone is greater with a resultant very steep slope on one side and rather gentle slope on the other. Slumps and slides are very common in these formations. In general on the dip slope (that part which was once horizontal) numerous small and sometimes rather extensive benches are found as a result of these slumps. Massive earth slides can occur on either side of the ridge, but appear more common on the dip slope. Drainage patterns have left some formations relatively intact and greatly dissected others. Rather unstable soil conditions are present in the steeply sloping dissected slopes. The soil contains high percentages of silts and clays and although subject to abundant rainfalls, is quite permeable and is generally not very erodible when fully protected by vegetative cover. Most erosion occurs in the form of drainage slide-outs and active slump movements. This type of erosion occurs periodically whether the land is disturbed by management activities or not. Poor management practices, however, can contribute materially to these rather massive earth movements. It is poor management from an erosion standpoint to undercut the toe of a slump or to dump waste material in the head waters of streams.

IV. Growing Capacity

The abundant rainfall, good soils and mild climate of the Siuslaw National Forest combine to form highly favorable growing conditions for forest trees. Considerable Site I and II land exists on about seventy-five percent of the Forest. Site III and IV land is also present and is usually found on drier, rocky, thin soiled ridge tops. Thin soil in itself is not a major deterent to growth. Cases exist where the site is highly productive, the soil may be only a foot deep, but is underlain by weathered fractured rock. The average for the Forest is Douglas-fir Site Index 170. Growth tables are included in the appendix.

V. Losses

In general the timber resources on the Forest are not subject to heavy current annual losses. The prompt disposal of logging slash through broadcast burning and an aggressive fire prevention program have held losses from fire to a minimum. Acreage burned per year is minor and does not constitute a management problem.

Losses due to wind during normal years are also of minor significance. Sale layout practices have been developed to the point where windthrow due to normal winter storms rarely exceeds 5 MM board feet a year.

Catastrophic storms are rare but might be expected to occur once or twice during a rotation. This type of storm occurred on October 12 (Columbus Day), 1962. The storm felled or damaged an estimated 740 MM board feet of timber on the Forest. When such storms occur, to the fullest feasible extent, salvage operations are substituted for current harvest programs. If losses exceed ten percent of the inventoried timber a new inventory should be made to determine remaining growing stocks and necessary adjustments made in allowable cuts. Management appears to be able to do little to prevent losses from such severe storms as the Columbus Day, 1962 storm which brought wind gusts exceeding 180 miles per hour in some areas. Good management practices, however, tend to reduce the severity of such losses.

Severe storm damage (but of considerably less intensity than the October 12, 1962 situation) can be expected to occur periodically; possibly at ten to fifteen year intervals. The timber harvest program for the Forest must be flexible to permit substitution of salvage operations for scheduled programs to minimize losses in such situations. The last storm of this kind occurred in 1951.

Losses due to disease are minor on the Forest. The remaining old-growth stands on the Forest are generally rather decadent and average thirty to forty percent cull. These stands have the full complement

of diseases common to Douglas-fir old-growth stands and should be harvested at the earliest opportunity. Poria werrii infection centers are fairly common in the Douglas-fir second growth stands in certain areas. Poria may develop into a major management problem in the future, but little is known about how the disease acts in stands under rotation age. To date, indications are that poria attacks trees in this area as they reach and pass rotation age. The disease reacts slowly in small groups, and weakens the trees, making them more susceptible to other agents such as wind and insects.. Armillaria mellea root rot, has recently been noted in several young plantations throughout the Forest. Killing has been limited to individual widely scattered trees and losses have been of little or no consequence.

Losses due to insects are, in general, very light. The most serious pest in past years has been the Douglas-fir bark beetle. The populations of bark beetles run in cycles depending on the amount of mortality from other causes in the stand. Under normal conditions, stands on the Siuslaw do not contain enough windfalls and other recently dead trees to permit establishment of large beetle populations. The occasional catastrophic windstorm, however, does create conditions highly favorable to heavy buildup of the beetle population and serious losses could occur. The prompt salvage of dead material can avoid serious losses from the beetle population buildup. This control measure was well demonstrated by the fairly rapid cleanup of timber damaged by the October 12, 1962 storm and relatively light subsequent losses due to bark beetles. Indications are that more intensive management practices in the future will substantially reduce losses due to Douglas-fir bark beetles by reducing their breeding areas and by producing trees better able to ward off beetle attacks.

Numerous other insect pests are also present in the timber stands of the Siuslaw, but have been of little consequence in the past. The Sitka spruce weevil, for example, causes the loss of leader growth in young Sitka spruce stands on the coast. This insect plus the limby characteristics of this tree make it a less desirable species to grow. Sitka spruce sites will also grow fine stands of Douglas-fir and western hemlock, so the problems of growing spruce are of only minor consequence.

Largely because they have not been a management problem in the past, little is known about many of the insects found on the Forest. One such insect, a moth belonging to the "Noctuid" family, devoured much of the new foliage growth on about 8,000 acres of Douglas-fir stands during 1964 and 1965. Many of these stands were on National Forest land in the Harlan area. Although this epidemic is apparently subsiding and very little mortality occurred, the case demonstrates that these little known insects may have the potential to cause severe damage if conditions are correct. Little is known what effect if any, intensive management will have on these insects, but it seems reasonable that more healthy, vigorous trees will be less susceptible.

VI. Reforestation

Because of the good soils, abundant rainfall, and mild climate, the Forest has relatively little trouble getting trees to survive on most cutover areas. Most areas are planted with two year old Douglas-fir seedlings. Getting these trees to grow, however, can be quite another situation. Competition from native brush vegetation is nearly always present. Good slash burns which kill back competing vegetation have proven to be the most effective regeneration tool used in the past. This method of preparing the planting site has produced approximately eighty percent successful plantations. Most adjacent private cutover land which was not burned has developed into dense jungles of brush. Chemical treatment for control of competing brush looks promising for some species. Alder can be killed rather easily with 2-4D herbicide if it is quite small. Likewise salmonberry is relatively susceptible to treatment with Amitrol-T herbicide. Although these tools are useful, they are seldom totally successful and instances occur where chemicals convert the area from one competing brush species to another equally competing species. A broader spectrum herbicide which can be used without injury to conifers is badly needed. In addition more knowledge about the use of existing herbicides is also needed.

Control of animal damage to plantations is also a major reforestation problem on some areas. Browsing by deer and elk is very severe on some areas and of little consequence on others. Many control measures have been tried in the past, but the fence has proven to be the best method so far developed.

Mountain beaver, rabbit and mouse clipping have also been severe in some areas. Baiting and trapping have been tried in the past with little success. Cheaper and more effective methods for controlling animal damage are needed to bring such damage within tolerable limits.

In the past, the Forest has relied on seed collected from wild stands for reforestation purposes. This source has not proven too satisfactory. Abundant seed production does not occur at regular intervals in uncultured stands. As many as seven years or more may go by between good seed years. Even when a good seed year does come, some seed zones and elevations may not be represented. Cone insects also take a heavy toll. Topography and lack of squirrel caches often make picking difficult. Because of these problems, the Forest has not been able to obtain much seed for direct seeding although this method of regeneration appears promising and cheaper on some areas. In some years, the Forest has been hard put to provide the nurseries with enough seed to grow the trees it needs for planting. Developing planting stock by zones and elevation bands has been largely out of the question.

VII. Cutting Practices

Patch clearcutting has been the dominant cutting practice used in the past. This cutting has been in patches ranging in size from about five acres to well over one hundred with an average size of forty to sixty acres. Shelterwood cutting has not been tried very extensively due mainly to brush and site preparation problems. This method looks promising only on limited areas in the extreme easternmost part of the Forest and in the spruce-hemlock type close to the coast. Here some natural shelterwoods have developed with the understory being mostly western hemlock. Patch clearcutting with artificial regeneration is likely to remain the primary regeneration cutting method used on the Forest.

Partial cutting for the removal of salvage has long been practiced on the Siuslaw. Some of these cuttings have actually been thinnings although dead and defective timber only, was removed. Planned thinnings from below the main crown canopy have been done in recent years with much success. These cuttings have pointed the way to the planned intermediate cuts developed in the plan under "Forest Regulation".

During the program to salvage the 740 MM board feet of timber damaged by the October 1962 hurricane, large volumes of timber were sold in 1963 and 1964. This coupled with good market situations resulted in heavy overcutting in 1964 and 1965. Current Five-year Action Plans comtemplate a cutting rate of 457.1 MM board feet in Fiscal Year 1966 and 417.9 MM board feet in Fiscal Year 1967. As was shown in tabular form on page 19, harvest cutting covered an average of 4,657 acres for the five-year period of 1956-1960 increasing to 7,418 acres in 1964. The Timber Business Report as of January 1, 1965 recorded an uncut volume under contract of 632.0 MM or 1.9 times the old annual allowable cut.

It is necessary that the new calculation of allowable cut and the control method provide for maintaining regulated cutting rates as shown by the plan while providing the necessary flexibility to deal with severe salvage situations such as occurred after the recent storm.

MANAGEMENT OBJECTIVES AND POLICIES

SIUSLAW NATIONAL FOREST

MANAGEMENT OBJECTIVES AND POLICIES

I. Objectives

The objective of management of the timber resources on the Siuslaw National Forest shall be to provide the optimum sustained production of usable wood consistent with management of all the other uses of the Forest. This will be accomplished through the following:

A. Develop an adequate distribution of age classes. This will enable the Forest to make regeneration cuts in approximately rotation age timber without the necessity of holding stands for long periods beyond their culmination of growth.

B. Develop cutting patterns and practices which will hold losses by wind, disease, insects, fire, etc., to a minimum.

C. Develop better, more vigorous, plantations through development of: adequate supplies of better quality seed by zones and elevations, better techniques for growing, handling and planting trees, and better animal and brush control methods.

D. Develop healthier and more vigorous growing stock inventories through pre-commercial and commercial thinnings. Commercial thinnings should be started at the earliest possible age of the stand and carried on at proper intervals until harvest cutting. In this manner the stand will be kept growing at near its maximum rate and produce the greatest amount of usable wood with minimum mortality losses.

E. Restoration of high quality conifer sites currently occupied by low volume producing species, such as red alder, to conifer production. This should be accomplished as much as practicable through methods which provide for the harvest of the material presently occupying the site consistent with the cost-benefit relationships present.

F. Establish stocked plantations on all productive sites which are presently unsatisfactory or non-stocked.

The methods of management used to obtain this objective should include but not be limited to the following:

1. Encourage the development and use of harvesting methods which best coordinate all National Forest uses and improve the accessibility of stands to management. This includes development and use of aerial logging systems.

2. Encourage the full development of timber access roads at the earliest possible date.

3. Intensify the knowledge of and management of all sites and stands through the use of compartment examinations, records, and management prescriptions.

4. Streamline record keeping so as to make records more useful and easily kept.

5. Streamline selling and harvesting procedures to better accomplish this work at less costs through more efficient layout procedures, cruising procedures, etc.

II. Policies

It shall be the policy of the Siuslaw National Forest to:

A. Annually sell the regulated allowable cut from timber key value areas in both the harvest cut and intermediate cut categories.

B.. Annually sell the allowable cut from landscape management areas in both the harvest cut and intermediate cut categories in accordance with all the policies as stated in the Forest Service manual for management of these areas.

C. Annually sell as much of the unregulated cut goal without surpassing it as industry can effectively absorb.

FOREST REGULATION

SIUSLAW NATIONAL FOREST

FOREST REGULATION

I. General

The total statistical acreage of the Siuslaw National Forest is 619,137 acres. A minor adjustment of -375 acres is necessary to arrive at the actual number of ground acres administered by the Forest. This adjustment is the net result of considering the effect of irregular sections, etc., on actual land areas. A summary of the land resources by various management categories is found on page 8 of this plan.

The former three Siuslaw working circles have been consolidated into a single working circle. This consolidation facilitates inventory, timber management planning and record keeping.

The average site index on the Forest is 170 for Douglas-fir which is the principal species. The average net mean annual empirical increment for seventy year old stands based on inventory data is 696 board feet per acre (page 52). About ninety percent of the conifer stands are 105 years old or younger (see page 51). Growing stock is well distributed through the age classes when contrasted to most Douglas-fir subregion forests.

The timbered lands are relatively well developed from a transportation standpoint with more than one-third of the total system of roads now completed. It is estimated that thirty years will be required to complete the planned road system.

Forest industries are highly developed and have an installed capacity substantially in excess of the available timber supply from all sources. Timber sales having an average d.b.h. as low as 15 inches sell readily with competitive bidding on most of the sales. Beginning in 1962, a concerted effort was initiated to develop an intermediate cutting program. This program now amounts to 3,960 acres per year and yielded 45.6 MM board feet in calendar year 1965. These sales have been well accepted. There appears to be little probability of saturating this market.

Indications are that residual stands on intermediate sale areas maintain their windfirmness. Although this intermediate cutting program had not resulted in many completed sales prior to the Columbus Day hurricane of 1962, indications from National Forest lands as well as adjacent Bureau of Land Management and private lands, are that when thinned from below in moderate amounts residual stands had average, if not better than average, windfirmness.

From the foregoing, it is evident that the calculation of the allowable cut should include the increased yields now possible through more intensive management.

II. Special Considerations.

A. Inventory Standards

In previous planning, it was necessary to adjust the calculated cuts to reflect differences between inventory volumes and recovered volume as scaled in long logs. Because thorough studies were lacking, it was difficult to support professional judgment in making such adjustments.

The current inventory is compiled in terms of average net scale recovery. A tree study was made to derive a local volume table. Plot volumes were worked up based on this local volume table. The tree study and local volume table in turn is based on the results of regular timber sale utilization practices and bureau scale on logs delivered to regular scaling points on trucks or in dry decks throughout the Forest. Therefore inventory data and calculated and/or allowable cut and other timber harvest objectives are stated directly in terms of commercial scaling units.

B. Regeneration Period

This Forest has suffered many regeneration delays due to brush and alder competition and animal damage. Inventory practice involved aging trees at d.b.h. and adding five years to account for the time required for trees to reach d.b.h.

A field study was made of every fourth plantation on the Forest as recorded in the historical atlas. The year of cutting and the year that dominant and co-dominant trees reached four and one-half feet was determined to find the actual average time between harvest and the new stand reaching four and one-half feet in height. This was determined to be 6.32 years. The addition of 1.32 years to the inventoried age of trees is therefore necessary in arriving at the proper rotation.

C. Intensive Management

To what degree should intensive forest management be considered in the plan?

1. Progress to Date

Until 1963, intensive management of stands not yet scheduled for final harvest was nil. No pre-commercial thinnings of importance had developed. Commercial thinning sales of limited scope had been offered. In most cases, these involved timber stands fifty years of age and younger. Sufficient margin was not available to build enthusiasm among purchasers for sales of this type.

In 1962, plans were made to offer thinnings from stands fifty to one hundred years of age. This program began to gain impetus

in 1963 and in 1964 over 2,000 acres were advertised and found a ready market. The sale announcement for calendar year 1965 includes 3,960 acres of intermediate cut sales and is enthusiastically accepted by the timber industry as a means of increasing production from National Forest lands. Prior to this plan sales of this type have been largely unregulated. Thinning sales provide an average tree of from 16 inches to 22 inches d.b.h. and have been appraised in the range of $18.00 to $32.00 per M board feet. Substantial competitive bidding has developed for these sales.

In 1963, 7,500 acres of partial-cut salvage of wind damaged timber was sold. Although the trees included in these sales may have been more representative of dominant and co-dominant crown classes when compared to the thinnings from below in the current program of intermediate sales, the acreage sold is indicative of industries' ability to handle large volumes of intermediate harvest.

From the foregoing resume', it appears evident that the time for the shift to intermediate cutting has arrived. The problem now is to determine what portion of the forest resource is subject to this treatment.

2. Future Possibilities

Based on experience, problems and possibilities associated with the intermediate cut, the determination of acreage and yield includes certain premises, i.e.:

a. Topography of less than forty percent is generally suitable for tractor logging. These are the average slopes that will be operated. In actual practice where soils are critical tractor logging may not be used on forty percent slopes. On short slopes with stable soils, some tractor logging on slightly steeper slopes may be prudent.

b. Cable logging can be practiced upon steeper ground within a zone five hundred feet wide straddling the present road system and the planned roads that will be completed later in the rotation.

c. Stands younger than fifty years of age will not produce commercial forest products during the present plan period.

From an analysis of inventory plots and the road system, it appears that fifty-four percent of the commercial forest acreage will be suitable for intermediate cutting during the ensuing plan period and that seventy-one percent will be suitable when the road system is completed, about thirty years hence.

It is now evident to Forest personnel as well as industry personnel that the feasibility of intermediate cutting has been demonstrated; it offers a substantial increase in the sustained yield capacity of the working circle, and the new allowable cut calculations should exploit this practice to the fullest extent possible as demonstrated during the last three years.

3. Management Premises

a. Stocking Concept

It has been indicated by silviculturists in this and other regions that even aged stands may produce substantially their full yield with stocking that is well below normal if the dominant and co-dominant trees are well spaced and maintained in a thrifty condition. It is believed that this concept is sound enough to provide a basis for long range planning on the Siuslaw Working Circle. The questions of "what is the normal stocking for each site" and "what marking rules will leave the proper distribution of trees capable of producing optimum growth" require further assumptions.

b. Yield, Pure Conifer Types

Normal stocking as indicated in U.S.D.A. Technical Bulletin No. 201 does not appear representative of Siuslaw stands of Douglas-fir. The current inventory indicates that Siuslaw stands often exceed the Bulletin 201 stands in basal area, number of trees, average size and total volume, particularly in those age classes under age eighty. The central coast range was not well represented in the Bulletin 201 study plots. A Siuslaw normal yield table derived from inventory data is more realistic for local use. This is used both for preparing this plan and for application of the stocking level concept in marking intermediate cut sales in the field.

The Siuslaw normal yield table represents the volume and basal areas from the highest one-third by volume of all of the inventory plots on Site II (see page 55).

The primary beneficial result anticipated from applying this for a marking guide is the anticipation of normal mortality for harvest as a part of net yield. The basic guideline

for marking intermediate cuts is to reduce stocking to sixty percent of Siuslaw normal basal area. The first priority in marking goes to trees which are or will foreseeably contribute to mortality. A stand which is reduced to sixty percent normal basal area would logically be expected to have little mortality through suppression or loss of weaker trees. For this reason, net yield is expected to be improved both on young stands and those near or past rotation age. The residual stands will, as a result of basal area reduction, have less than normal yield at harvest time.

In order to predict future yields from partially cut stands, it is necessary to develop for these stands, a table by age classes which gives periodic net growth and residual yields. This has been accomplished on the basis of the stocking concept described above, applied to the Siuslaw normal yield table for fully stocked, even aged stands of Douglas-fir and associated species, (see page 61).

D. Mixed Species and Alder Stands

In the timber key value area, there are 67,370 acres of hardwoods, primarily red alder. These are basically former coniferous forest lands which have been burned by disastrous fires in the late 1800's and early 1900's. They have been captured by brush and red alder. The stands in this category have eighty percent or more of their volume in hardwoods.

In addition there are 90,468 acres of mixed species. These stands are defined as those having less than eighty percent conifers and less than eighty percent hardwoods by volume. Their history is similar to the pure hardwoods. The market for timber sales on both the mixed and pure hardwoods areas depends largely on the market for red alder. Although a stand having seventy-five percent conifers might attract bids from softwood mills, the preponderance of the land area and stems are alder and it is not feasible to fell such tracts for either clear cutting or partial cutting unless merchantable alder will be utilized.

The hardwood industry on and adjacent to the Siuslaw, cut 633 M board feet in 1962, 3,490 M board feet in 1963 and 4,500 M board feet in 1964 from National Forest lands. At present there is about 6,412 M board feet of uncut alder under contract. Until the hardwood market builds up substantially, both types are included in an unregulated cut category. In the interest of increased yield of forest products, the bulk of these lands should be restored to coniferous production as rapidly as the hardwood industry can absorb the hardwood logs. The cutting of both of these broad types is planned as an unregulated cutting objective. Hardwood stands growing on adjacent ownerships and on hardwood sites within the National Forest, should sustain a substantial hardwood industry indefinitely.

Within the mixed species areas there is an average of 19.9 M board feet per acre of coniferous species which will become available as hardwood sales are made in this type. This provides an incentive to both the hardwood and softwood industry to utilize these stands.

III. Allowable Cut Theory and Calculations

A. Pure Conifers

1. Calculation of Rotation

For pure conifers the basic rotation is the age at which stands over seven inches d.b.h. culminate their net mean annual increment based on U.S.D.A. Bulletin No. 201 International 1/8 inch scale. For Site II, the Siuslaw average, this is 80 years. Based on empirical yield tables, the average d.b.h. at 80 years is computed to be 21 inches.

Stands which receive intensive management culminate realized growth at a later age. This is generally assumed to be culmination of gross mean annual increment. Based on Research Paper #14, Site II, International 1/8 inch scale for trees over seven inches d.b.h., this is 105 years (see page 51). From stand projections, this rotation will produce trees which average 29 inches in d.b.h.

To this must be added the regeneration period. For the Siuslaw this is 1.32 years.

Since 71 percent of the Siuslaw working circle is planned for intensive management, the average rotation is calculated as follows:

29% x 80	=	23.20
71% x 105	=	74.55
Weighted Average	=	97.75
Regeneration Period	=	1.32
Rotation	=	99.07

For ease in daily use and further calculations, this is rounded to 100 years.

The regulatory period of this plan is approximately 90 years. Timber harvested from uncultured stands after this period will be approximately 80 years old with an average d.b.h. of 21 inches. Timber harvested from cultured stands will be approximately 105 years old with an average d.b.h. of 29 inches.

2. Construction of Yield Tables for Stands Receiving Intermediate Cuts

As previously noted, stands under fifty years old do not currently provide merchantable products. The residual yield table therefore starts at age fifty. The problem then is to determine what volume will remain on a fifty year old or older stand after it has been reduced to sixty percent of Siuslaw normal basal area and at any later age after having received one or more intermediate cuts. A further problem is determining the volume which may be removed by intermediate cuts following the first cut.

Solutions to these problems were determined from a study by Gerald Meier on September 4, 1964, which shows that volume is directly proportional to basal area. For example, removing twenty-five percent of the basal area in stand sizes three and four would remove approximately twenty-five percent of the volume. This study was based on inventory plots on timber key value, pure conifer stands, which occurred on slopes under forty percent. Merchantable trees on each plot were removed on the basis of lower crown classes first until the plot basal area had been reduced to sixty percent of the Siuslaw normal basal area.

With this simple converting factor and the Siuslaw normal yield table, the volume equivalent to sixty percent of Siuslaw normal basal area can readily be determined. This is considered to be the minimum volume that will occur on a stand immediately after it is intermediate cut. It is assumed that the stand will then grow at a rate approaching gross growth for ten years when it will again be reduced to sixty percent of normal.

From the Siuslaw periodic annual mortality table, annual periodic mortality can be determined and added to net growth to determine gross growth. Because of imperfect accomplishment in marking and logging, it is not considered realistic to achieve one-hundred percent of gross growth. A realistic net harvestable growth is judged to be eighty percent of gross growth.

From the Siuslaw normal yield table, periodic net growth and periodic mortality can be determined. With this known, the volume yield ten years after intermediate cutting can be determined. In theory these calculations will result in a "saw-tooth" curve, (see page 59). The vertical side of the saw-tooth shows the maximum volume attained ten years after an intermediate cut at the apex and the minimum volume based on sixty percent of normal immediately after an intermediate cut at the low point.

An example of the calculation for ages ninety and one-hundred follows. The Siuslaw normal yield at age ninety is 81,000 board feet. It is reduced to sixty percent through intermediate cutting or 48,600 board feet. During the ensuing ten years, normal growth is 10,048 and normal mortality is 3,930. Gross growth is the sum or 13,978. Then eighty percent of gross growth or 11,182 board feet is added to the residual volume at age ninety to achieve a maximum residual growing stock at age one-hundred of 59,782 board feet.

When these stands are finally clearcut they will not be, on the average, exactly ten years past the last intermediate cut. Therefore, an average residual volume curve has been drawn midway between the maximum and minimum. It is assumed that the average residual one-hundred year old stand will yield 57,206 board feet per acre if clearcut. This is tabulated on page 61, column 6.

The residual volume curve is shown on page 58. The empirical volume for all timber key value pure conifer plots is also shown. Since the construction of the residual volume table is based on assumptions this comparison with the empirical volume is made as a means of weighing the validity of the results. An analysis of all intermediate sales prepared in 1964 show that the average reduction in volume from the initial cut averages about 11 M board feet per acre. A check of page 58 indicates a similar reduction in volume. Marking guides used in 1964 were based on normal basal areas from U.S.D.A. Technical Bulletin 201. A reduction to sixty percent of Bulletin 201 basal areas results in a heavier initial cut than when the Siuslaw normal basal area is used. However, the marking rule also limited the initial cut to a maximum of thirty percent of existing basal area. This limit influenced the cut on the greater portion of the 1964 sales, since most stands were overstocked by Bulletin 201 standards. Use of the Siuslaw normal table will tend to offset the results of this limitation. Therefore it is concluded that the assumptions used in deriving the Siuslaw normal yield table and the residual volume table closely approximate results that will be attained in the field application and are therefore sound for planning purposes.

From the discussion above, the question might arise "does the use of the Siuslaw normal yield table as a base for intensive management run the risk of over optimism in calculating the allowable cut which in turn may require a reduction in the allowable cut at a later date?" In answer to this, residual yields will be close to those shown in any residual yield table developed along the lines discussed above, as long as the basal area guides to field marking are based on the same table. Use of the Siuslaw normal yield table as a base results in higher residual volumes for harvest cutting than would be the case if Bulletin 201 yield tables were used. From this standpoint the Siuslaw normal yield table provides a sounder approach.

In predicting the yields from intermediate cuts, use of the Siuslaw normal base results in greater yields from successive cuts but lower yields from initial cuts than would result with Bulletin 201. The Siuslaw normal yield table sets the intermediate cutting goals during the ten year period of this plan.

3. Adaptation to Area-Volume Check

Since there is no known established method of calculating the allowable annual cut on even aged stands which are supporting intermediate cuts, the area-volume check method is adapted.

The first step is the separation of each age class into cultured and virgin stands. Since fifty-four percent of all the timber key value land is suitable for intermediate cutting, approximately fifty-four percent of each age class can receive intermediate cutting during this plan period. A ten year cutting cycle is established for this purpose. Page 51 illustrates the growing stock model on a 100 acre representative sample of the timber key value, pure conifer stands, including residual stands that have been partially cut. During the second ten year cutting cycle seven percent of each age class will have been added to the intermediate cut, etc., until the road system is completed in the third cutting cycle and seventy-one percent of the lands are under intensive management.

The portion of each age class that has been intermediate cut shows a corresponding smaller volume per acre. This is logical since the concept for intensive management is to reduce the stand to sixty percent of its normal basal area.

It follows that it would not be prudent to clearcut all of the virgin and all of the residual one-hundred year old age class before cutting in the ninety year old age class, if the residual one hundred year old class was still near its peak mean annual increment, while the ninety year old virgin age class was past its peak mean annual increment. In order to make these determinations a mean annual increment curve has been developed (1) for virgin or uncultured stands and (2) for residual, intensively managed stands, (see page 60). The curve for intensively managed stands is based on the Siuslaw normal net yield and mortality data previously described.

Mean annual increment figures for cumulative yields under intensive management is related to volume at age fifty and subsequent intermediate and harvest yields. The mean annual increment figures, for each age are described as shown by the following example for age eighty:

From page 52, empirical yield of natural stands at age fifty is 33,955 board feet per acre. The initial intermediate cut will reduce this volume to 22,675 board feet per acre (sixty percent of Siuslaw normal, page 61, column 3). The cut is 11,280 board feet per acre. From page 61, column 7, intermediate cut at age sixty would be 3,094 board feet per acre and at age seventy would be 3,626 board feet per acre, at age eighty, from page 61, column 5, maximum available harvest yield would be 46,500 board feet per acre. The total of these yields after the initial intermediate cut would be: 11,280 + 3,094 + 3,626 + 46,500 = 64,500 board feet per acre. The realizable mean annual increment for final harvest at age eighty is $\frac{64,500}{80}$ = 806 board feet per acre per year.

4. Area-Volume Checks for Harvest Cut

Cutting priorities for final harvest can now be established. A conventional area-volume check is set up. Two major revisions are necessary.

a. Instead of listing stand ages chronologically, a chronological progression of cutting priorities as shown on page 51 is used.

b. Since Hanzlick's formula doesn't apply the area-volume check is used directly without an estimated volume cut. A fixed annual acreage cut is used rather than a fixed annual volume. This calculation shows that 3,676 acres per year will be clearcut and an average annual cut over the rotation is the sum of all of the annual cuts divided by 100 (see page 62).

5. Calculation of the Intermediate Cut

With the preceding data available, it is relatively simple to calculate the intermediate cut. An area volume summary can be set up as on page 66, by ten year cutting cycles by age classes. For example, look at age class one-hundred. During the first cutting cycle fifty-four percent of this age class is available for an intermediate cut or 45,253 acres. This cut will be the initial reduction in growing stock. From page 52 the empirical yield of a virgin one-hundred year old stand is 67,034 board feet per acre. From page 61 it is seen that the minimum (sixty percent of Siuslaw normal yield) yield for age one-hundred is 54,629 board feet per acre. The initial cut will then average 12,405 board feet per acre. Multiplied by the acreage this yields a total of 561 MM board feet during the ten year period. A similar calculation is made for each age class down to and including age class fifty.

During the second cutting cycle, present one-hundred year old stands are 110 years old. Of this age class fifty-four percent will be intermediate cut for the second time and will yield 5,504 board feet per acre, see column 7, page 61. Multiplied by the 45,253 acres this cut yields 249 MM. In addition 5,866 acres (the additional seven percent) are made available by the expanded road system and receive an initial cut of 12,019 board feet per acre or a total of 71 MM. A similar calculation is made for other ages.

Reference to page 51, priority 8, shows the time that will elapse before clearcutting the residual one-hundred year age class. Final harvest will begin 29.7 years from now and be completed in 45.9 years. This removes the one-hundred year age class from the tabulation and it is re-inserted as a zero age class in the fourth cutting cycle near the bottom of the tabulation on page 66. In the ninth cutting cycle it has reached age fifty and will again receive an initial cut. Since clearcutting is planned at the rate of 36,765 acres per cutting cycle, seventy-one percent of this acreage or 26,103 acres is available.

It is readily apparent that the area-volume check for clearcutting (page 62) and this area volume summary are closely interrelated. One cannot be changed without changing the other. The total net yield for any cultured age class during the rotation is the horizontal sum of the cuts for that age class from page 66, plus the "total volume when cut" from the corresponding residual age class on page 62. In the case of the one-hundred year old age class, this is 6,231 MM for the period 37.8 years on an area of 59,499 acres. This results in a periodic annual growth of approximately 1,200 board feet per acre per year for the intensively managed stand and increases mean annual increment to about 760 board feet per acre per year. This can be compared to uncultured one-hundred year old stands. From page 62 these stands will be harvested 13.8 years hence resulting in a periodic annual growth of 560 board feet and a mean annual growth of 650 board feet.

If the acreage of intermediate cutting falls below that estimated, the clearcut volume will increase but periodic growth will drop. The result will be to lower annual cuts.

B. Landscape Management Area

Because of the rather restrictive timber harvesting practices and extra sale stipulations, the allowable cut from the landscape management area should be regulated separately from the timber key value area. It is therefore necessary to plan the landscape management cut as a separate working group. Because the intensity of the inventory in the landscape

management area is insufficient to provide an adequate degree of accuracy, average volume per acre from timber key value areas has been used and applied to the landscape management area by the three main type classifications of pure conifers, mixed species and pure hardwoods.

The landscape management area has been classified in the field into four cutting prescription categories, i.e.:

Occupancy areas 1 and 2, unregulated 6,807 acres

Travel influence area category 3, regulated 48,171 acres

Cutting policies and prescriptions are governed by the landscape management policy, FSM 2121.33, Siuslaw Supplement No. 21, December 1964, FSM 2323.3, R-6 Supplement No. 175, August 1963, and FSM 2471.4, R-6 Supplement No. 129, June 1965.

Category 3A, regulated 31,596 acres
Prescriptions cited above permit modified clearcutting and intermediate cutting. These areas yield their full potential cut comparable to timber key value areas.

Category 3B, regulated 16,575 acres
These areas cannot be clearcut but can sustain intermediate and shelterwood cuts.

Category 3C, unregulated 3,625 acres
These areas cannot be partial cut, clearcut or salvaged due to topography in relation to streams and roads without violating the prescriptions and policies cited above.

These categories are broken down into pure conifers, mixed species and pure hardwoods in the same proportion as was found on the timber key value area.

Timber Key Value Commercial Forest Acres	525,486
Pure conifers	367,648 - 70%
Mixed species	90,468 - 17%
Pure hardwoods	67,370 - 13%
Landscape Management Category 3A	31,600
Pure conifers	22,100 - 70%
Mixed species	5,400 - 17%
Pure hardwoods	4,100 - 13%
Landscape Management Category 3B	16,600
Pure conifers	11,600 - 70%
Mixed species	2,800 - 17%
Pure hardwoods	2,200 - 13%

The calculation of the allowable cut for Category 3A can most realistically be done by comparison to the calculation results from timber key value. From page 62 it can be seen that the average yield of virgin and cultured stands at harvest time is 70.0 M per acre. With the one-hundred year rotation the annual area cut is 221 acres. The total average regulated clearcut volume indicated would be 15.5 MM per year.

Since the 70.0 M per acre volume used is the average yield per acre for the entire rotation period; it includes expected growth on rotation age timber which must be held for cutting in future cutting cycles. Therefore, it is unrealistic to expect this high a volume yield during this plan period (first cutting cycle). Current experienced harvest cuts indicate that the average yield from these lands can only be expected to be 60.0 M board feet per acre during this plan period. The allowable cut for clearcutting in Category 3A for the plan period is therefore, 221 acres per year with a volume yield of 13.3 MM board feet.

A detailed field review of the Category 3A and 3B areas resulted in the determination that fifty-four percent of the area will not be suitable and accessible to intermediate cutting during the next ten years as is planned for timber key value areas. Landscape management areas are not well developed. The primary road system in these areas is most often in the stream bottom. A strip of private land occupies the stream bottom in most cases reducing the portion of readily accessible area. Although considerable clearcutting has been done in the landscape management area, these sales have generally extended into the primary foreground from landings situated at the top or outside the landscape management area. This has left the Forest with an inadequate transportation system for intermediate cuts in the intervening leave areas. With emphasis on this transportation need, landscape management areas can be fully developed within thirty years but only one-third of this development can be accomplished during the plan period.

The intermediate cut for Category 3A is then thirty-three percent of 22,100 acres times the average initial intermediate cut per acre of 12.6 M from page 66. This results in a total intermediate cut during the plan period of 91.9 MM or 9.2 MM annually.

The cut from Category 3B must be on a different basis since modified clearcutting is not possible. The intermediate cuts on these areas are calculated to yield 10,500 board feet per acre on one-third of the total category 3B area during the plan period, or 4.0 MM board feet. Overall yields during the rotation are expected to be slightly better than the average of current net and current gross growth or 475 board feet per acre per year. This results in an average annual cut of 5.5 MM board feet for the rotation.

In summary the indicated annual cut for the landscape management area during the plan period is indicated as follows:

Category 3A Clear-cut		Category 3A Inter. Cut		Category 3B, I.C.		Total Landscape Management Annual Cut
Acres	Vol.MM	Acres	Vol.MM	Acres	Vol.MM	Volume
2,210	15.5[1/]	729	9.2	383	4.0	28.7

1/ Clearcut volume yield during the first cutting cycle is expected to average 13.3 MM per year.

C. Mixed Species and Pure Hardwoods

As previously described, the preparation of sales in these types are generally dependent on the condition of the hardwood markets. It is generally accepted in this area that alder stands should have a rotation of sixty to seventy years. Since the goal is to restore these lands to conifer production as soon as possible, the most rapid rate of cutting possible might be desirable. The allowable cut is calculated to provide an unregulated cutting objective for these working groups.

The allowable cut for mixed species based on a sixty year rotation is 90,468 ÷ 60 to 1,508 acres per year. An area volume check has been made, see page 63. This calculates the total annual cut from mixed species and also separately shows the coniferous segment resulting from this cutting rate. The indicated cut is 30.4 MM board feet coniferous species and 12.8 MM board feet hardwood species.

The pure hardwood cut is calculated on the same basis as the mixed species and results in an annual cut of 13.1 MM of hardwoods. See page 64. Projected yields for these calculations are based on the empirical yield tables (see page 54).

IV. Establishing The Allowable Cut

Because of the premises and assumptions required as a result of introducing intensive management into this plan, there is no practicable way to state the full management goal in terms of volume regulation. It can be said though, that intensification of management and the longer rotation should yield an equal or greater sustained flow of merchantable products than would be attained from an extensive management plan based on a straight eighty year rotation. Accordingly the allowable cut has been calculated on an eighty year rotation and the resulting volume is used as the basic minimum allowable cut.

A. Regulated Annual Allowable Cut Based on an Eighty Year Rotation 348.0 MM Board Feet (includes Both Timber Key Value and Landscape Management)

1. Pure Conifers, Timber Key Value

This calculation is shown on page 65. The indicated annual cut is 323.1 MM board feet.

2. Landscape Management Cut, Pure Conifers

On Category 3A pure conifer areas there are 22,100 acres. On an eighty year rotation the annual acreage cut is 276 acres and the average yield per acre from page 65 is 70.3 board feet, giving an annual cut of 276 x 70.3 M or 19.4 MM.

On Category 3B pure conifer areas, the cut is calculated on the basis of growth on page 46. This results in an average annual cut over the rotation period of 5.5 MM.

The total indicated landscape management cut for the eighty year rotation totals 24.9 MM per year.

B. Management Controls

In order to assure that the plan is carried out and actual increased yields result from intensive management as opposed to actually retrogressing into an eighty year rotation, a budget must be set up which will ensure that intermediate cutting is increased and clearcutting is decreased to the planned levels. When this point is reached total yields from intermediate cutting and harvest cutting should equal or exceed the basic allowable cut of 348.0 MM. To accomplish this it will be necessary to reduce harvest cut volume from the present sell level of about 334 MM annually to about 250.0 MM (including both timber key value and landscape management area regulated pure conifer areas). This can only be done as volume of intermediate sales increases sufficiently to provide a total cut of 348.0 MM. To accomplish this shift a five year period is considered feasible. When this shift is completed the working circle may be placed on an acreage control both for clearcutting and for intermediate cutting. These cuts must be further controlled on a non-interchangeable basis for the timber key value area and the landscape management area separately as shown in the tabulation on page 8.

Because the initial intermediate cuts remove heavier volumes than subsequent intermediate cuts, it is necessary to insure that unlimited intermediate cutting during this plan period does not interrupt the even flow of forest products during ensuing plan periods. The following calculation establishes such a control method.

The total annual cut averages 382.0 MM board feet over the rotation. This represents a gain of 34.0 MM board feet per year over the allowable cut based on a straight eighty year rotation (382.0 MM - 348.0 MM = 34.0 MM). This gain is based on repeated intermediate cutting at ten year intervals. The repeated re-entries result in the equivalent cumulative total of 1,451,751 acres being operated during the rotation (sum from page 66). Each acre of intermediate cut therefore increases total net yield by 2,340 board feet during the rotation. This per acre gain can be considered similar to an unregulated cut in excess of the basic allowable cut of 348.0 MM board feet and does not decrease the total inventory to the extent that even flow is jeopardized in future years. Therefore, 382.0 MM is the permissible ceiling on the cut. Harvest cutting must be maintained at the average planned level of 3,676 acres for timber key value and 221 acres landscape management areas per year. Credit for the "gain" is earned in the intermediate cutting budget and control record at the rate of 2,340 board feet per acre up to a maximum of 382.0 MM board feet total for all regulated cuts.

C. The Cutting Budget and Control Record

The ten-year cutting budget on page 9 through 12 provides a gradual reduction in harvest cutting during the first five years and a continuous increase in intermediate cutting during the entire plan period. The estimated regulated volume sold during the last year of the period reaches the goal of 382.0 MM.

Because of the serious disruption to both industry practice and Forest Service administration that would result from a sudden change to the new allowable annual cuts or goals, the Cutting Budget and Control Record is the basic guide for accomplishing objectives set forth in this plan. Adherence to the Cutting Budget through the current five year timber sale action plan is the means for meeting allowable cut objectives. Regulation of cuts will be governed on the "sell" rather than the "cut" unless unreasonably high volumes of uncut timber under contract develop. Instructions for preparing the five year timber sale action plan are covered in FSM 2417, R-6 Supplement.

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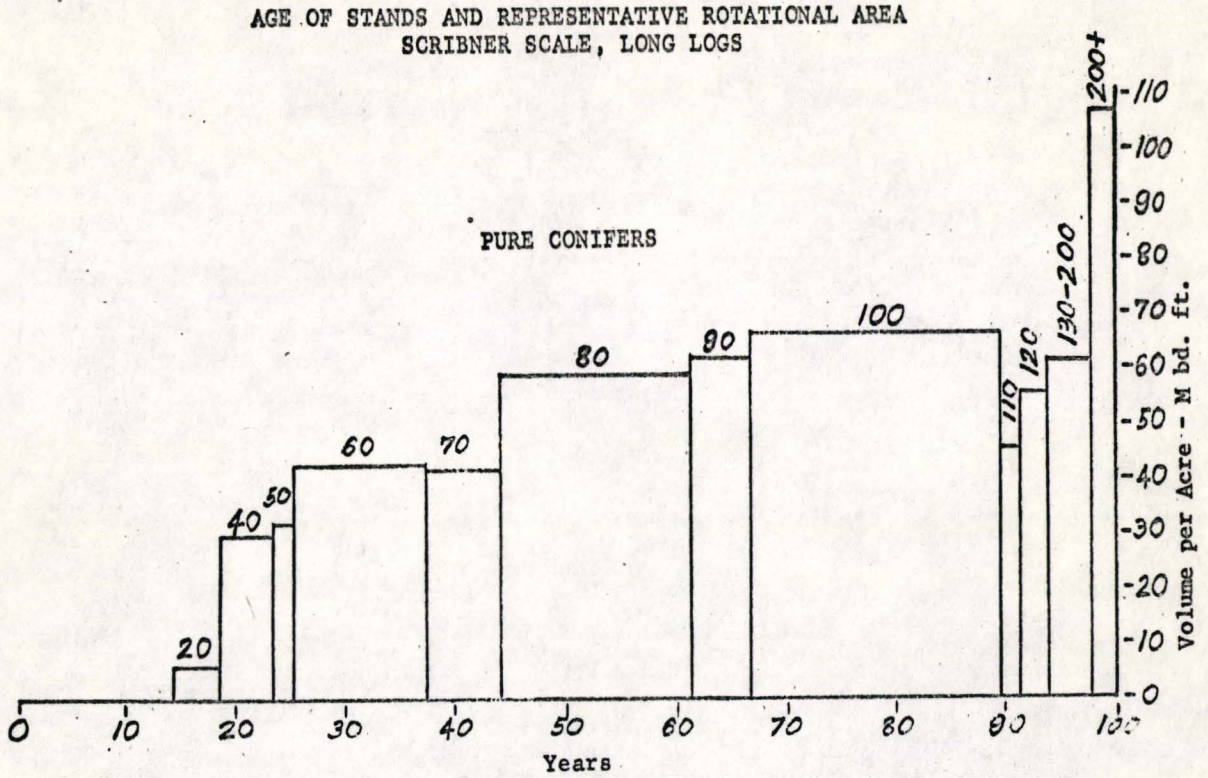
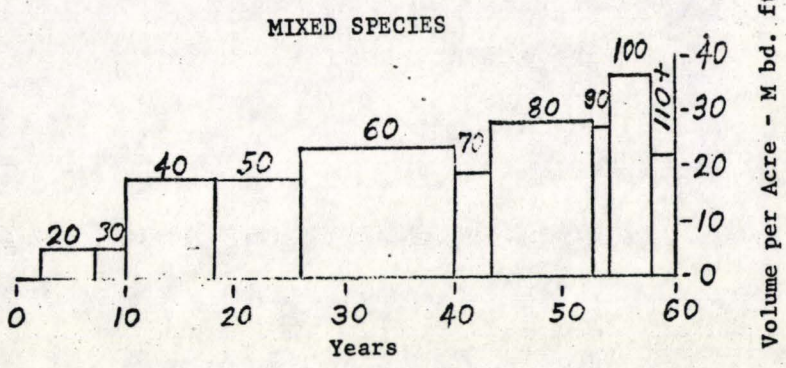
AGE OF STANDS AND REPRESENTATIVE ROTATIONAL AREA
SCRIBNER SCALE, LONG LOGS

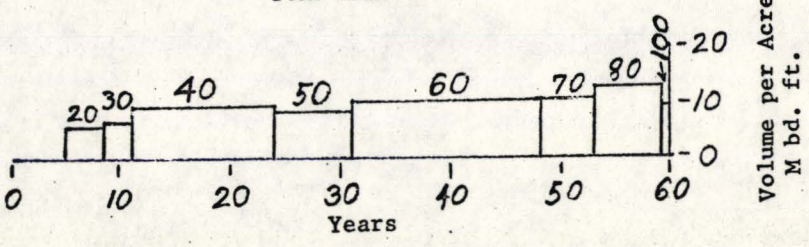
PURE CONIFERS



MIXED SPECIES



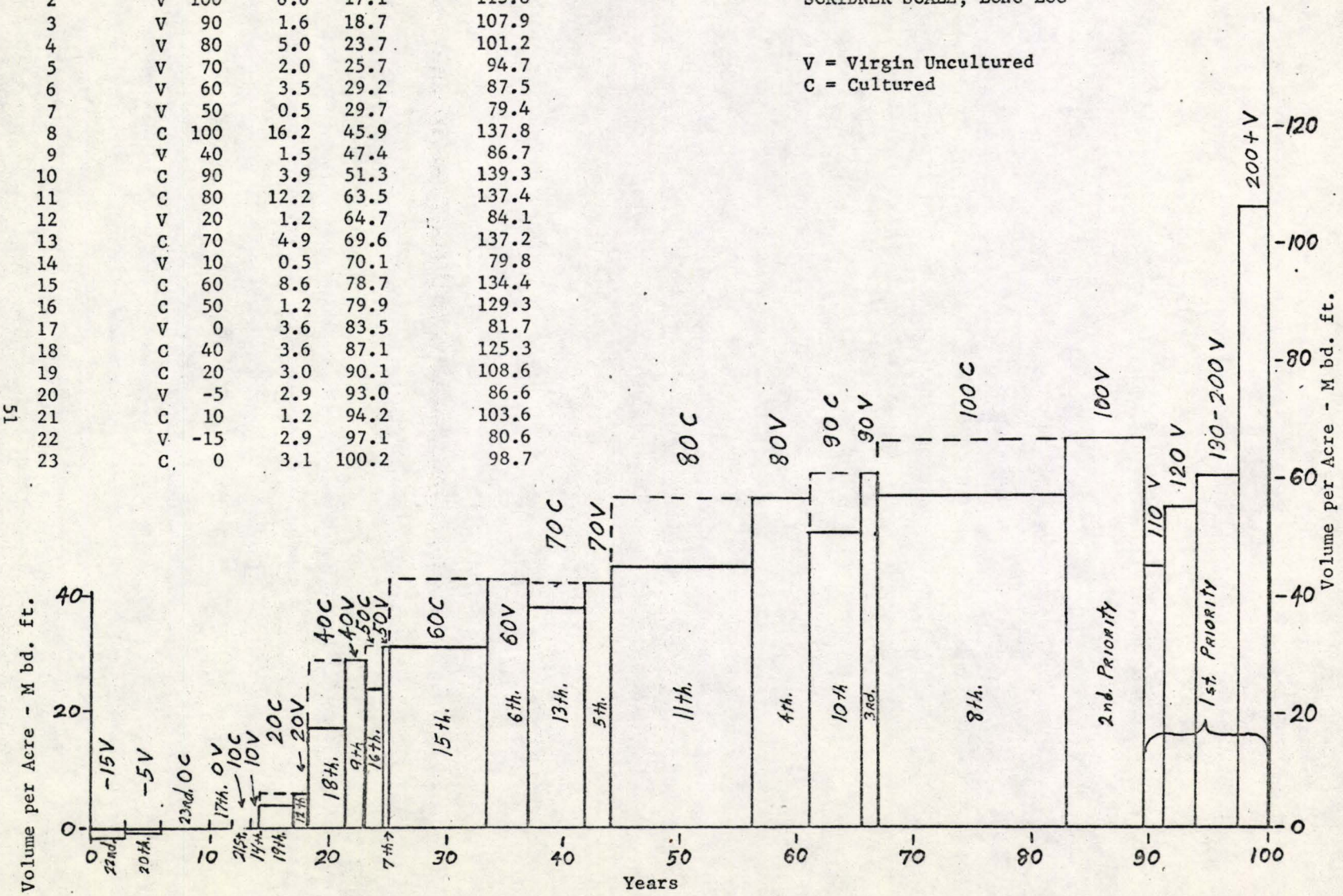
PURE HARDWOODS

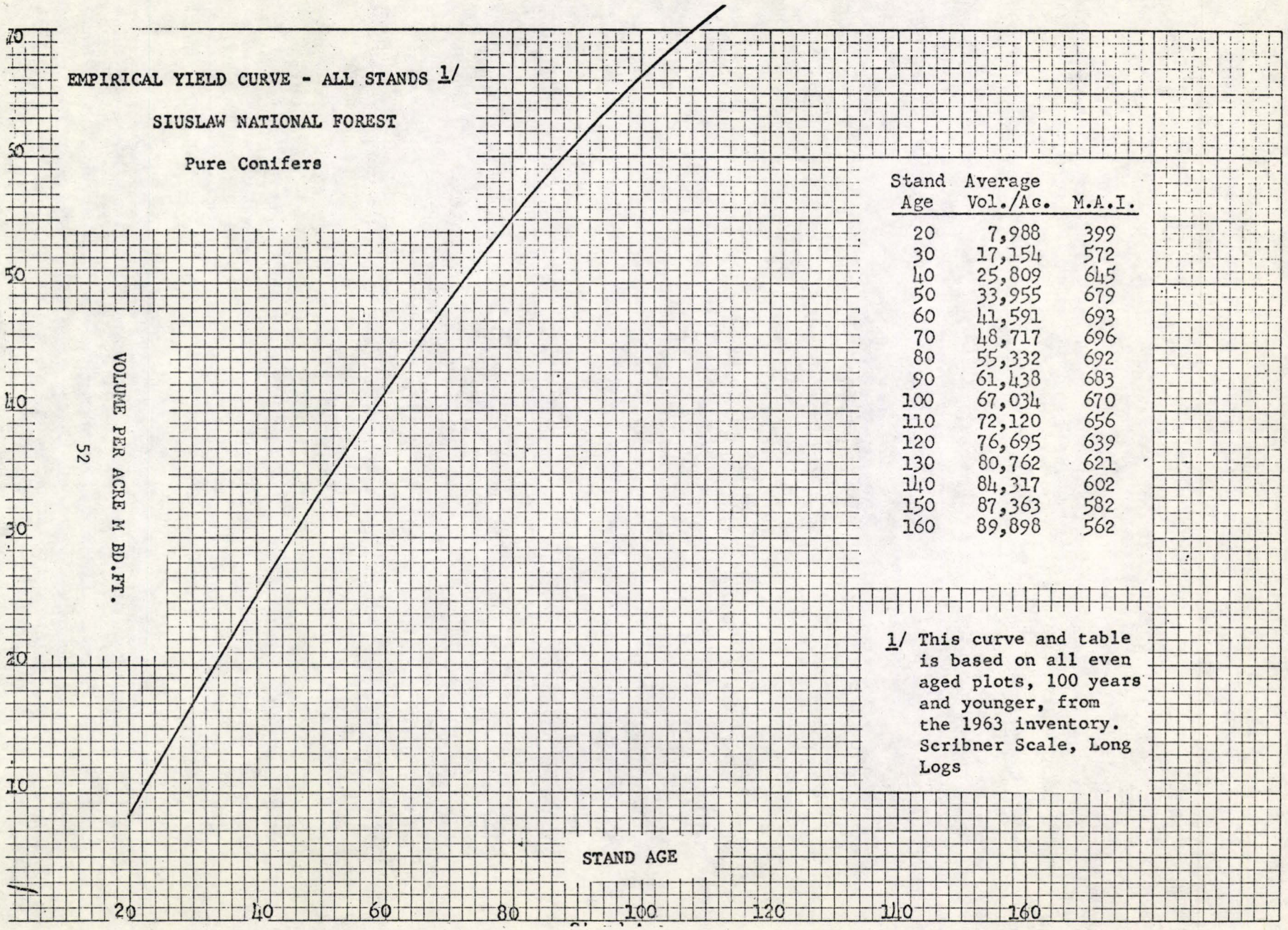


Priority	V or C	Age Class Now	Years to Cut Per.	Years to Cut Cum.	Ave. Age When Cut
1	V	110+	10.5	10.5	110+
2	V	100	6.6	17.1	113.8
3	V	90	1.6	18.7	107.9
4	V	80	5.0	23.7	101.2
5	V	70	2.0	25.7	94.7
6	V	60	3.5	29.2	87.5
7	V	50	0.5	29.7	79.4
8	C	100	16.2	45.9	137.8
9	V	40	1.5	47.4	86.7
10	C	90	3.9	51.3	139.3
11	C	80	12.2	63.5	137.4
12	V	20	1.2	64.7	84.1
13	C	70	4.9	69.6	137.2
14	V	10	0.5	70.1	79.8
15	C	60	8.6	78.7	134.4
16	C	50	1.2	79.9	129.3
17	V	0	3.6	83.5	81.7
18	C	40	3.6	87.1	125.3
19	C	20	3.0	90.1	108.6
20	V	-5	2.9	93.0	86.6
21	C	10	1.2	94.2	103.6
22	V	-15	2.9	97.1	80.6
23	C	0	3.1	100.2	98.7

100 ACRE MODEL OF PURE CONIFER SHOWING EFFECT OF INTER. CUTTING 71% OF EACH AGE CLASS
SCRIBNER SCALE, LONG LOG

V = Virgin Uncultured
C = Cultured





Stand Age	Average Vol./Ac.	M.A.I.
20	7,988	399
30	17,154	572
40	25,809	645
50	33,955	679
60	41,591	693
70	48,717	696
80	55,332	692
90	61,438	683
100	67,034	670
110	72,120	656
120	76,695	639
130	80,762	621
140	84,317	602
150	87,363	582
160	89,898	562

1/ This curve and table is based on all even aged plots, 100 years and younger, from the 1963 inventory. Scribner Scale, Long Logs

EMPIRICAL YIELD CURVE
SIUSLAW NATIONAL FOREST

MIXED SPECIES
FOR STAND AGES UP TO 120 YEARS
Scribner Scale, Long Logs

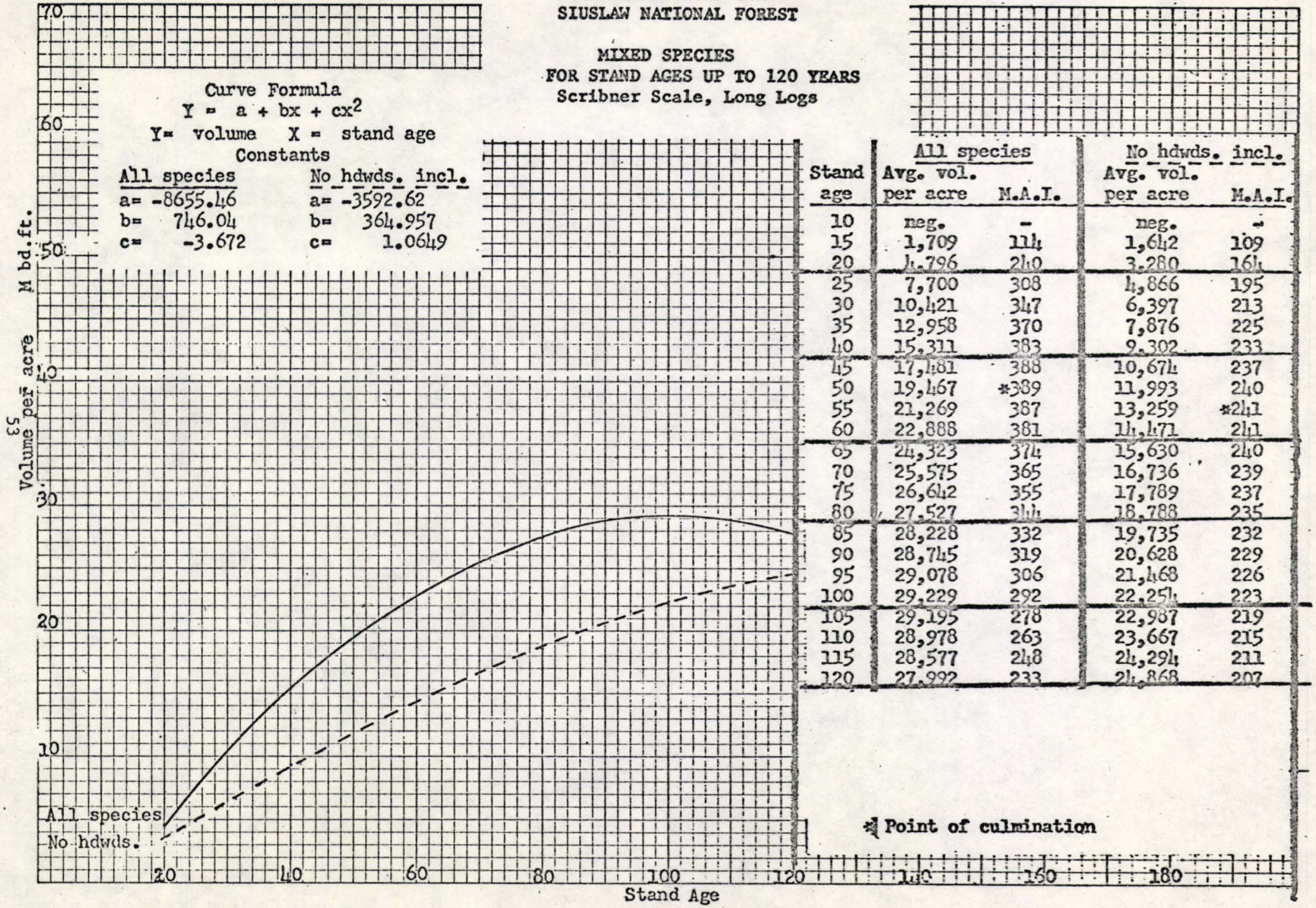
Curve Formula

$Y = a + bx + cx^2$

Y= volume X = stand age

Constants

All species	No hdwds. incl.
a= -8655.46	a= -3592.62
b= 746.04	b= 364.957
c= -3.672	c= 1.0649



Stand age	All species Avg. vol. per acre	All species M.A.I.	No hdwds. incl. Avg. vol. per acre	No hdwds. incl. M.A.I.
10	neg.	-	neg.	-
15	1,709	114	1,642	109
20	4,796	240	3,280	164
25	7,700	308	4,866	195
30	10,421	347	6,397	213
35	12,958	370	7,876	225
40	15,311	383	9,302	233
45	17,481	388	10,674	237
50	19,467	*389	11,993	240
55	21,269	387	13,259	*241
60	22,888	381	14,471	241
65	24,323	374	15,630	240
70	25,575	365	16,736	239
75	26,642	355	17,789	237
80	27,527	344	18,788	235
85	28,228	332	19,735	232
90	28,745	319	20,628	229
95	29,078	306	21,468	226
100	29,229	292	22,254	223
105	29,195	278	22,987	219
110	28,978	263	23,667	215
115	28,577	248	24,294	211
120	27,992	233	24,868	207

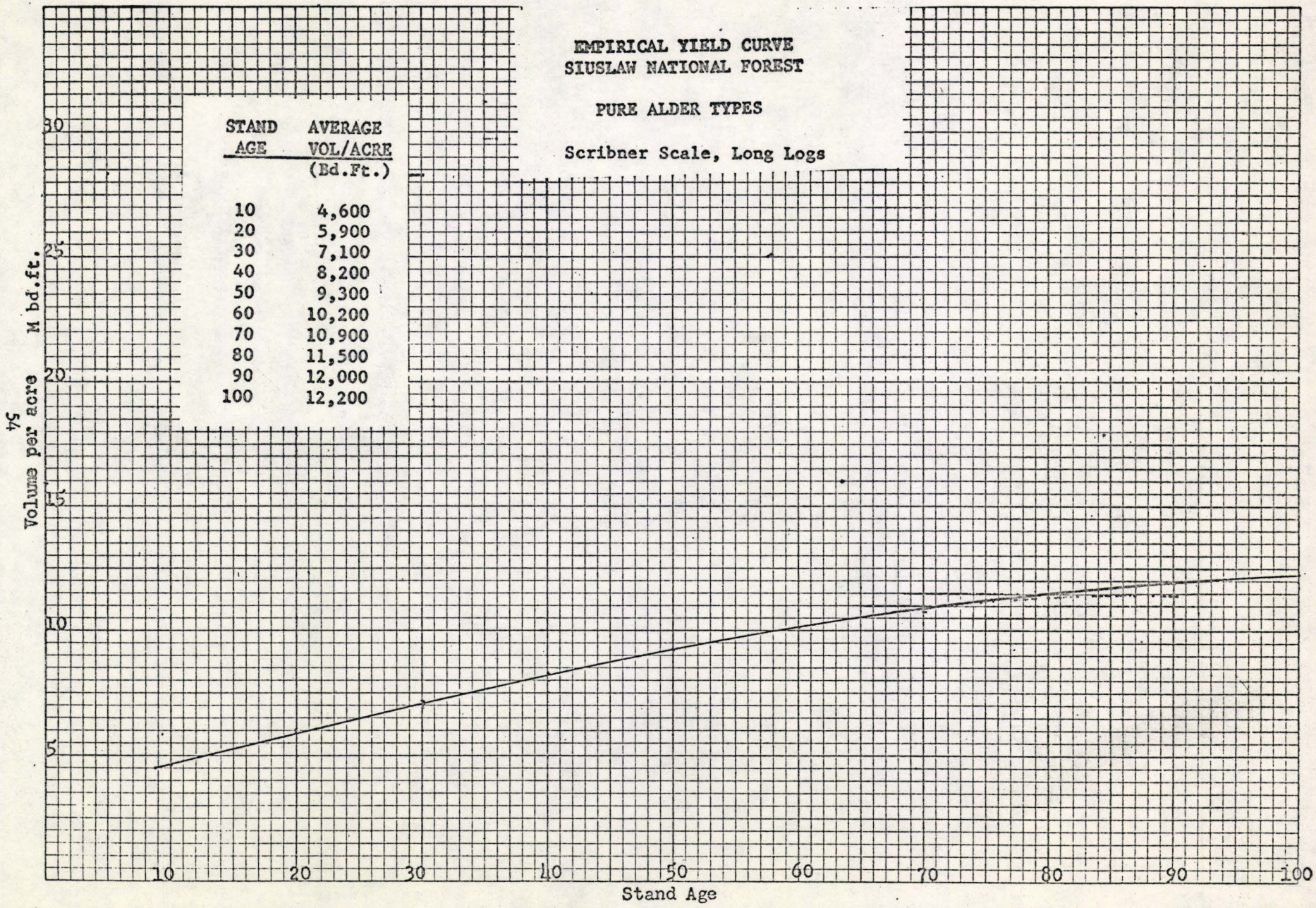
* Point of culmination

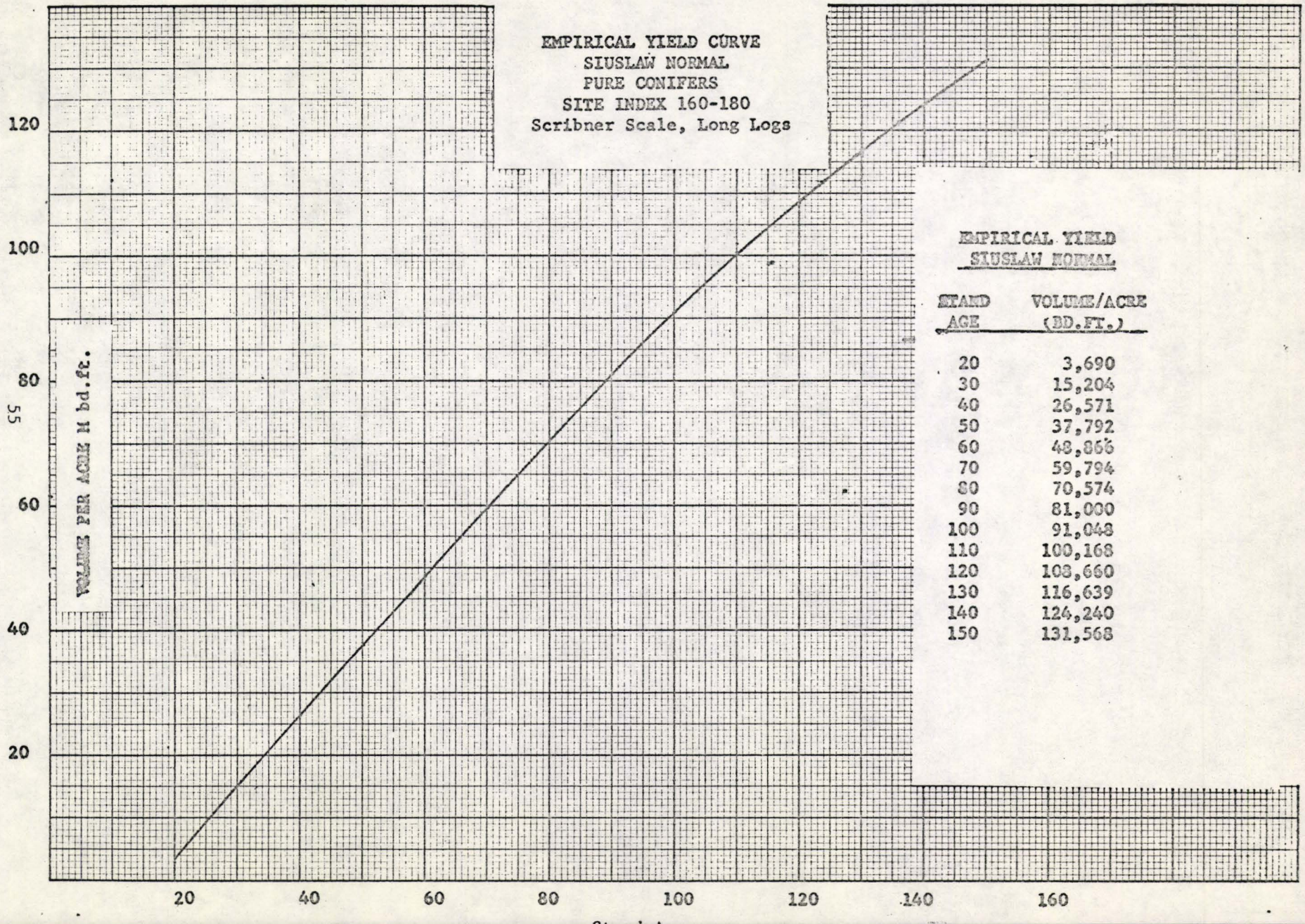
EMPIRICAL YIELD CURVE
SIUSLAW NATIONAL FOREST

PURE ALDER TYPES

Scribner Scale, Long Logs

STAND AGE	AVERAGE VOL/ACRE (Bd.Ft.)
10	4,600
20	5,900
30	7,100
40	8,200
50	9,300
60	10,200
70	10,900
80	11,500
90	12,000
100	12,200



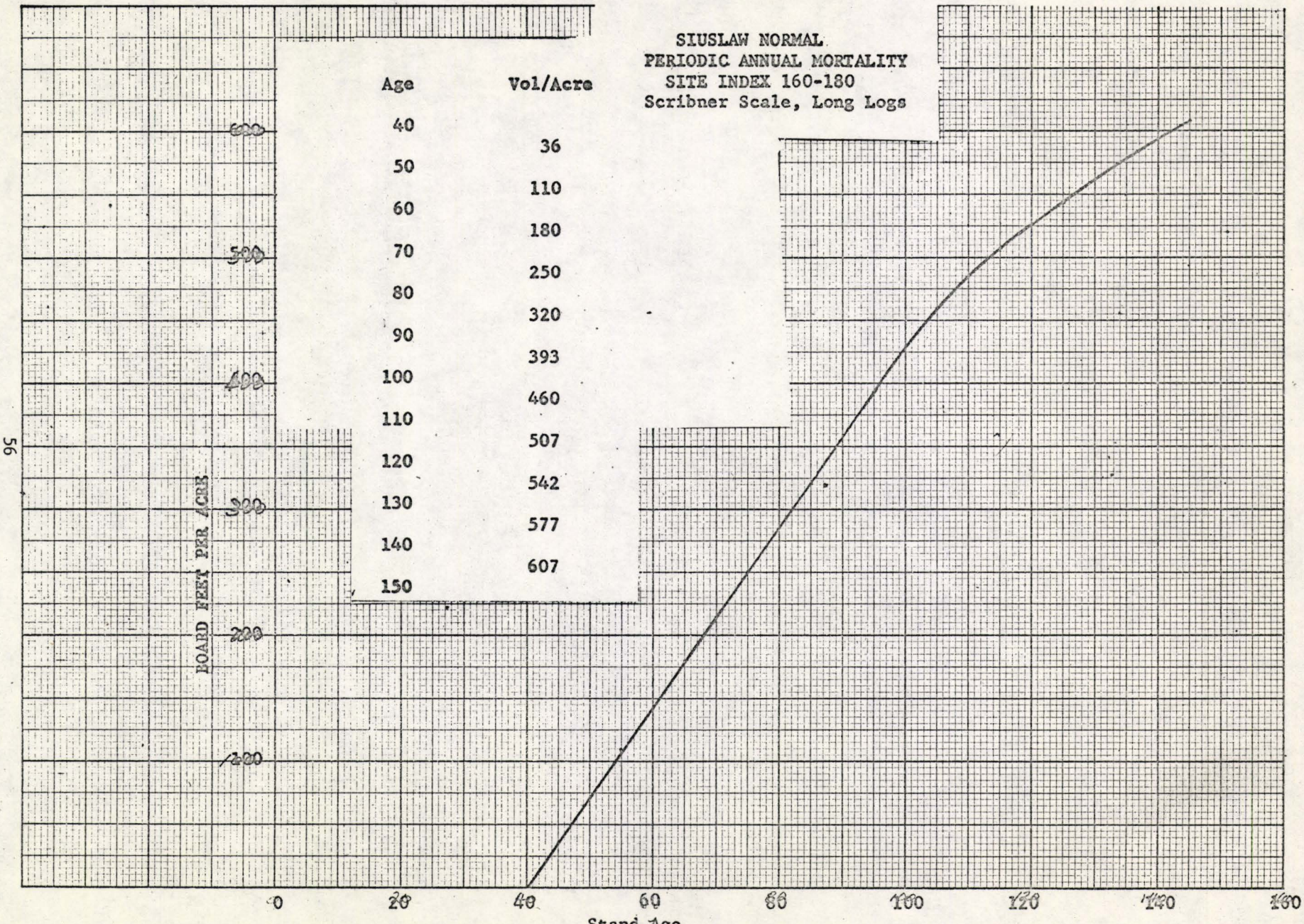


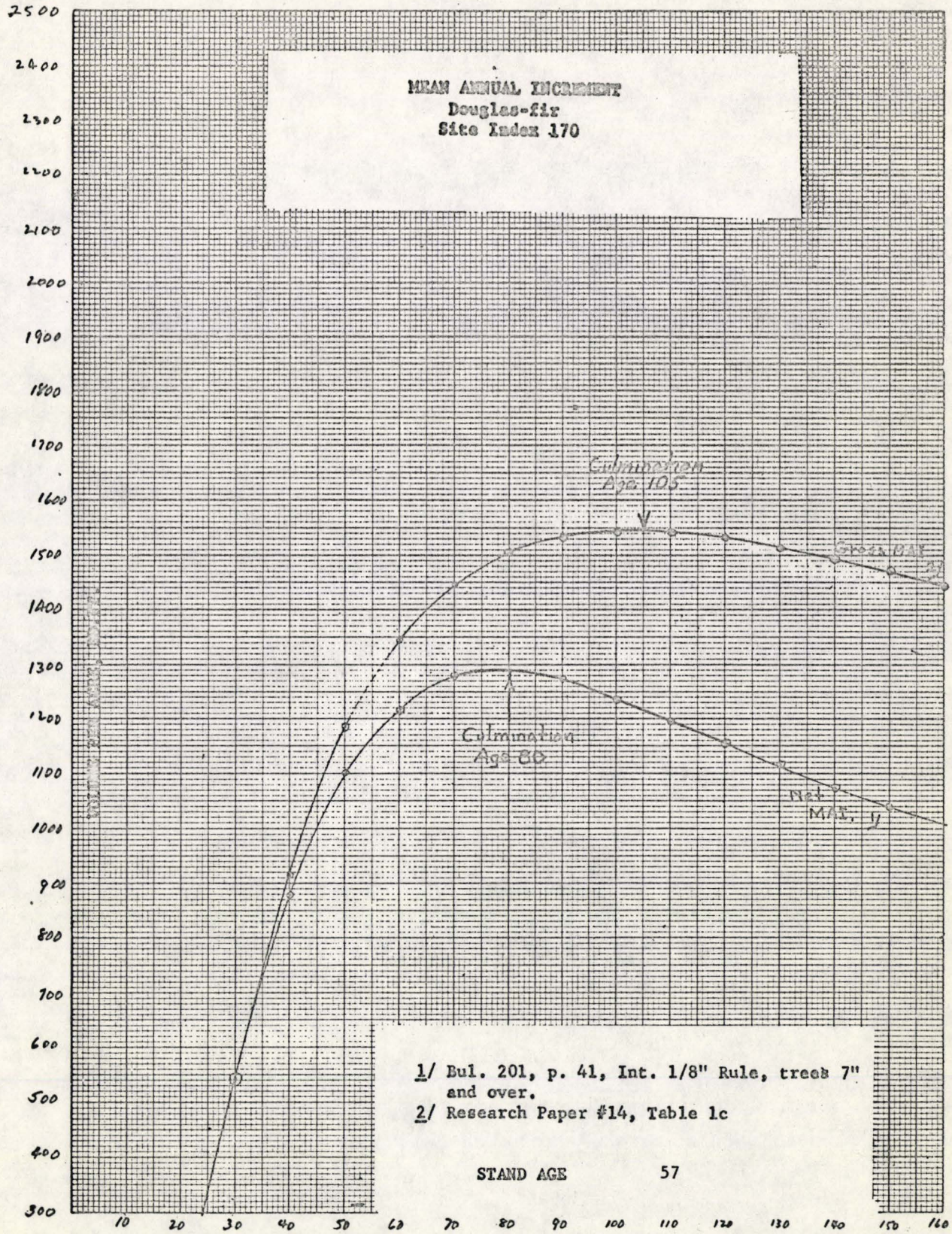
EMPIRICAL YIELD
SIUSLAW NORMAL

STAND AGE	VOLUME/ACRE (BD.FT.)
20	3,690
30	15,204
40	26,571
50	37,792
60	48,866
70	59,794
80	70,574
90	81,000
100	91,048
110	100,168
120	108,660
130	116,639
140	124,240
150	131,568

SIUSLAW NORMAL
PERIODIC ANNUAL MORTALITY
SITE INDEX 160-180
Scribner Scale, Long Logs

Age	Vol/Acre
40	36
50	110
60	180
70	250
80	320
90	393
100	460
110	507
120	542
130	577
140	607
150	



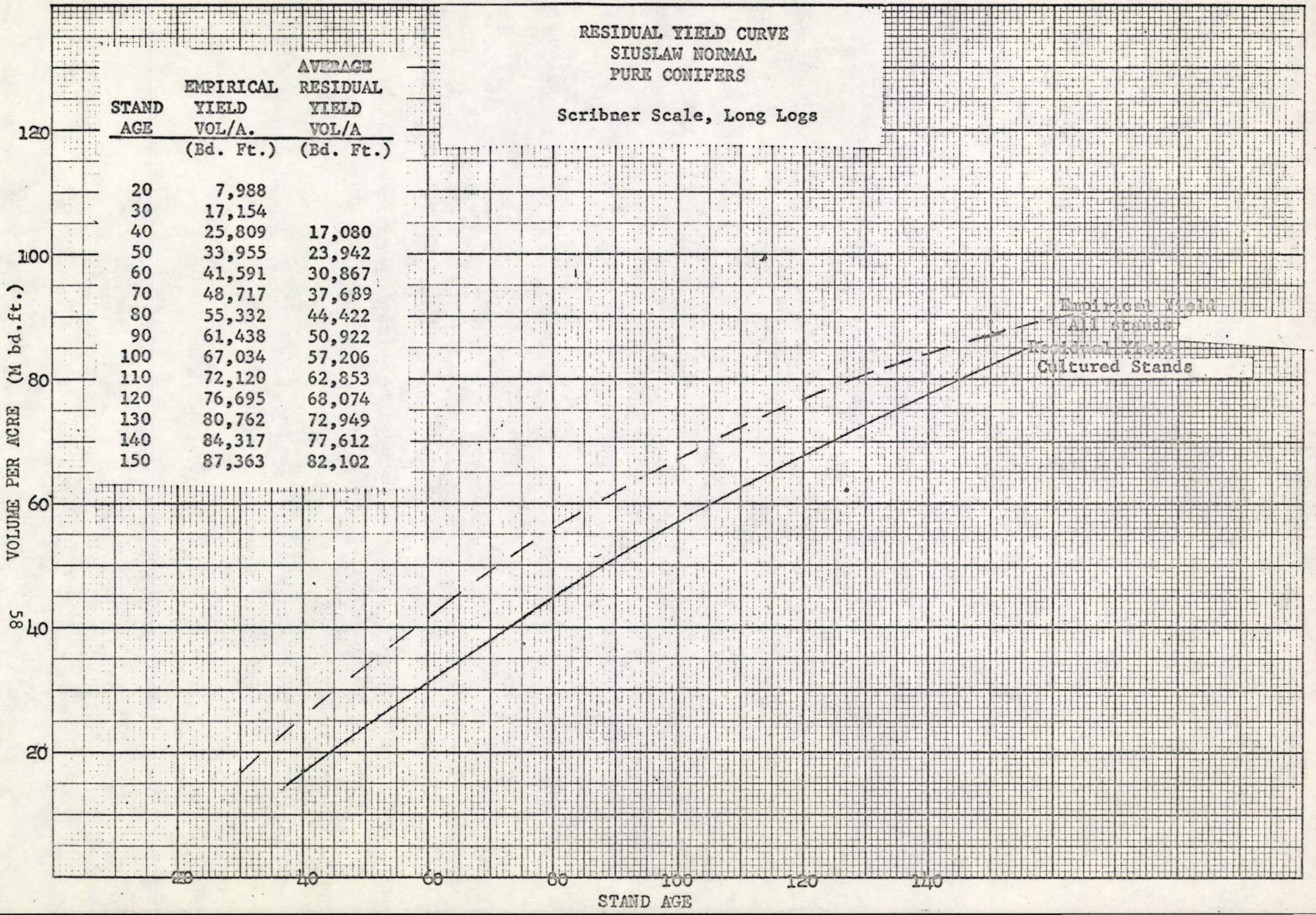


1/ Bul. 201, p. 41, Int. 1/8" Rule, trees 7" and over.
2/ Research Paper #14, Table 1c

RESIDUAL YIELD CURVE
SIUSLAW NORMAL
PURE CONIFERS

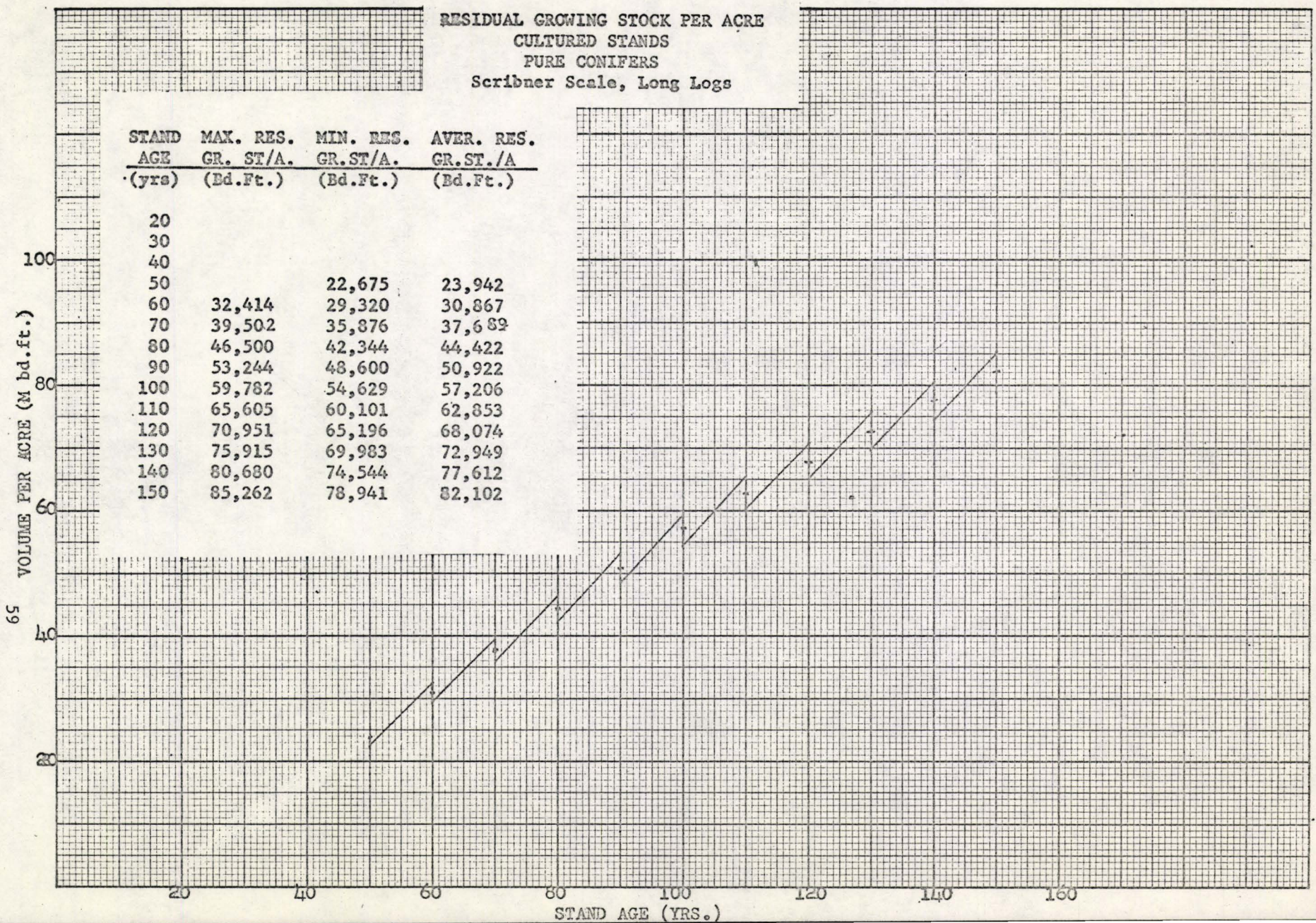
Scribner Scale, Long Logs

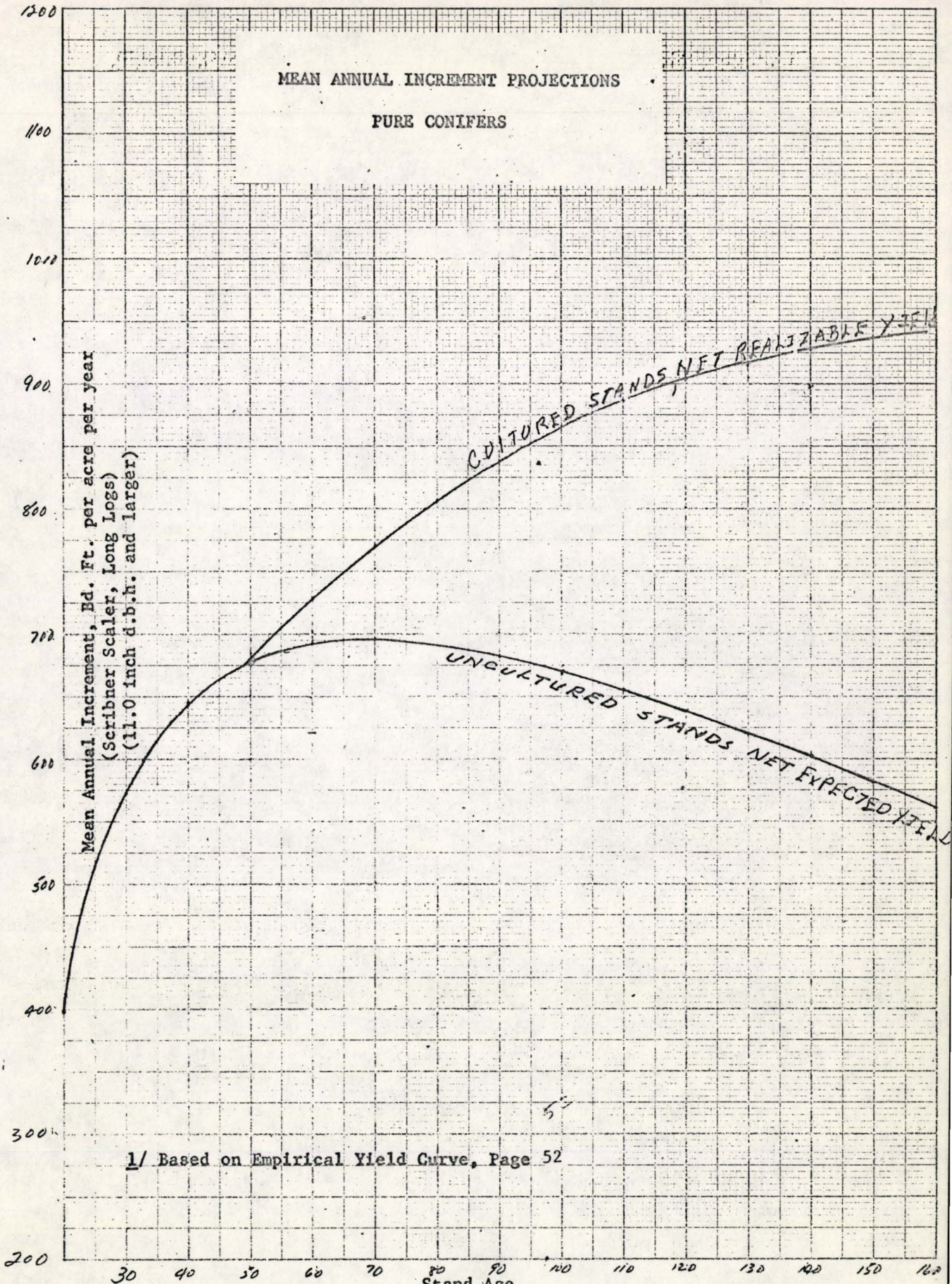
STAND AGE	EMPIRICAL YIELD VOL/A. (Bd. Ft.)	AVERAGE RESIDUAL YIELD VOL/A (Bd. Ft.)
20	7,988	
30	17,154	
40	25,809	17,080
50	33,955	23,942
60	41,591	30,867
70	48,717	37,689
80	55,332	44,422
90	61,438	50,922
100	67,034	57,206
110	72,120	62,853
120	76,695	68,074
130	80,762	72,949
140	84,317	77,612
150	87,363	82,102



RESIDUAL GROWING STOCK PER ACRE
CULTURED STANDS
PURE CONIFERS
Scribner Scale, Long Logs

STAND AGE (yrs)	MAX. RES. GR. ST/A. (Bd.Ft.)	MIN. RES. GR.ST/A. (Bd.Ft.)	AVER. RES. GR.ST./A (Bd.Ft.)
20			
30			
40			
50		22,675	23,942
60	32,414	29,320	30,867
70	39,502	35,876	37,689
80	46,500	42,344	44,422
90	53,244	48,600	50,922
100	59,782	54,629	57,206
110	65,605	60,101	62,853
120	70,951	65,196	68,074
130	75,915	69,983	72,949
140	80,680	74,544	77,612
150	85,262	78,941	82,102





1/ Based on Empirical Yield Curve, Page 52

FUTURE HARVEST AND INTERMEDIATE YIELD
PURE CONIFERS
ON STANDS WHICH HAVE BEEN INTERMEDIATE CUT
SIUSLAW NORMAL YIELD SITE INDEX 160-180
SCRIBNER SCALE, LONG LOGS

1 Age	2 Siuslaw Normal Vol/Acre 1/	3 Min. Residual Gr. Stock/Acre (60% Siuslaw Normal) 2/	4 Gross Per. Growth (10 yr. Net+100% Mort) 3/	5 Max Residual Gr.Stock/Acre (Col 3 + 80% Col. 4) 2/	6 Ave. Resid. Gr. Stock/Acre (Col. 3 + 5) / 2	7 Expected Cut Second and Successive Entries (Col. 5 - Col. 3)	8 Age
50	37,792	22,675			23,942		50
			12,174				
60	48,866	29,320		32,414	30,867	3,094	60
			12,728				
70	59,794	35,876		39,502	37,689	3,626	70
			13,280				
80	70,574	42,344		46,500	44,422	4,156	80
			13,626				
90	81,000	48,600		53,244	50,922	4,644	90
			13,978				
100	91,048	54,629		59,782	57,206	5,153	100
			13,720				
110	100,168	60,101		65,605	62,853	5,504	110
			13,562				
120	108,660	65,196		70,951	68,074	5,755	120
			13,399				
130	116,639	69,983		75,915	72,949	5,932	130
			13,371				
140	124,240	74,544		80,680	77,612	6,136	140
			13,398				
150	131,568	78,941		85,262	82,102	6,321	150

1/ See Page 55 2/ See Page 59 3/ See Page 56 for periodic annual mortality

AREA-VOLUME CHECK FOR HARVEST CUT
PURE CONIFERS
100 Year Rotation
Basic Harvest Cut is 3,676 Acres Per Year

Priority Groups	Present Age Class	Area Acres	Years To Cut		Current Stand Volumes				Age When Cut	Final Harvest Volume	
					Virgin		Cultured After Initial Inter. Cut				
			Per.	Cum.	Per Acre bd.ft.	Total MM bd.ft.	Per Acre bd. ft.	Total MM bd.ft.		Per Acre bd.ft.	Total MM bd.ft.
1V	110 +	38,432	10.5	10.5	67,894	2,609	--	--	110+	67,894	2,609
2V	100	24,302	6.6	17.1	66,703	1,621	--	--	115	74,408	1,808
3V	90	5,796	1.6	18.7	61,398	356	--	--	110	72,120	418
4V	80	18,303	5.0	23.7	57,578	1,054	--	--	100	67,034	1,227
5V	70	7,358	2.0	25.7	41,942	309	--	--	95	64,236	473
6V	60	12,931	3.5	29.2	42,073	544	--	--	90	61,438	794
7V	50	1,783	0.5	29.7	31,599	56	--	--	80	55,332	99
8C	100	59,499	16.2	45.9	---	--	57,206	3,404	140	77,612	4,618
9V	40	5,350	1.5	47.4	29,329	157	--	--	85	58,385	312
10C	90	14,191	3.9	51.3	---	--	50,922	723	140	77,612	1,101
11C	80	44,810	12.2	63.5	---	--	44,422	1,991	135	75,280	3,373
12V	20	4,460	1.2	64.7	5,737	26	--	--	85	58,385	260
13C	70	18,013	4.9	69.6	---	--	37,689	679	135	75,280	1,356
14V	10	1,783	0.5	70.1	---	--	--	--	80	55,332	99
15C	60	31,657	8.6	78.7	---	--	30,867	977	135	75,280	2,383
16C	50	4,364	1.2	79.9	---	--	23,942	104	130	72,949	318
17V	0	13,409	3.6	83.5	---	--	--	--	80	55,332	742
18C	40	13,097	3.6	87.1	---	--	17,080	224	125	70,512	923
19C	20	10,918	3.0	90.1	---	--	--	--	110	62,853	686
20V	-5	10,662	2.9	93.0	---	--	--	--	85	58,385	623
21C	10	4,364	1.2	94.2	---	--	--	--	105	60,030	262
22V	-15	10,662	2.9	97.1	---	--	--	--	80	55,332	590
23C	0	11,504	3.1	100.2	---	--	--	--	100	57,206	658
Total		367,648									25,732

V = Virgin Stands
C = Cultured Stands

$\frac{25,732 \text{ MM}}{367,648 \text{ A}}$ = 70.0 M/A Ave.

$\frac{25,732 \text{ MM}}{100 \text{ yr}}$ = 257.3 MM/Yr. Ave.

AREA VOLUME CHECK
MIXED SPECIES TYPES
SCRIBNER SCALE, LONG LOGS
60-YEAR ROTATION

Area Cut 1,508 Acres/Year

Present Age	Acres	Years to Cut Per.	Years to Cut Cum.	Combined Conifers & Hardwoods: Present Volume Per/Acre Bd.Ft.	Present Volume Total MM Bd.Ft.	Age When Cut	Volume When Cut: Per Acre 1/ Bd.Ft.	Volume When Cut: Total MM Bd.Ft.	Conifers Only: Volume When Cut: Per Acre 1/Bd.Ft.	Conifers Only: Volume When Cut: Total MM Bd.Ft.
110+	3,181	2.1	2.1	22,290	71	110+	2/ 22,290	71	2/ 17,832	57
100	6,211	4.1	6.2	36,122	224	105	2/ 36,122	224	2/ 22,987	143
90	2,386	1.6	7.8	25,698	61	95	29,078	69	21,468	51
80	13,706	9.1	16.9	27,637	379	90	28,745	394	20,628	283
70	4,620	3.1	20.0	18,715	86	90	28,745	133	20,628	95
60	21,507	14.3	34.3	23,691	510	85	28,228	607	19,735	424
50	11,626	7.7	42.0	17,666	205	90	28,745	334	20,628	240
40	12,422	8.2	50.2	17,949	223	85	28,228	351	19,735	245
30	4,620	3.1	53.3	5,715	26	80	27,527	127	18,788	87
20	7,803	5.2	58.5	5,767	45	75	26,642	208	17,789	139
10	1,591	1.1	59.6	--	--	70	25,575	41	16,736	27
0	795	0.5	60.1	--	--	60	22,888	18	14,471	12
Total	90,468							2,577		1,803

$\frac{90,468 \text{ Acres}}{60 \text{ Years}}$ = 1,508 A/Yr.

$\frac{2,577 \text{ MM}}{60 \text{ Years}}$ = 43.0 MM/Yr. All species

$\frac{2,577 \text{ MM}}{90,468 \text{ Acres}}$ = 28.5 M/Acre All species

$\frac{1,803 \text{ MM}}{60 \text{ Years}}$ = 30.1 MM/Year Conifers

$\frac{1,803 \text{ MM}}{90,468 \text{ Acres}}$ = 19.9 M/Acre Conifers

1/ See Empirical Yield Curve, Page 53

2/ Actual Volume per Acre from Inventory Data

AREA VOLUME CHECK
PURE HARDWOODS TYPE
SCRIBNER SCALE, LONG LOGS
60-YEAR ROTATION

Area Cut 1,123 Acres/Year

Present Age 3/	Acres	Years to Cut Per.	Years to Cut Cum.	Present Volume Per Acre Bd. Ft.	Present Volume Total MM Bd. Ft.	Age When Cut	Volume When Cut Per Acre Bd. Ft. 1/	Volume When Cut Total MM Bd. Ft.
100	705	0.6	0.6	9,362	7	100	9,362 2/	7
80	7,830	7.0	7.6	12,897	101	85	12,897 2/	101
70	5,647	5.0	12.6	9,917	56	80	11,500	65
60	20,604	18.3	30.9	9,747	201	80	11,500	237
50	8,515	7.6	38.5	8,712	74	85	11,750	100
40	15,597	13.9	52.4	9,264	144	85	11,750	183
30	2,825	2.5	54.9	6,243	18	85	11,750	33
20	4,237	3.8	58.7	5,559	24	75	11,200	47
10	705	0.6	59.3	--	--	70	10,900	8
0	705	0.6	59.9	--	--	60	10,200	7
Total	67,370							788

$\frac{67,370 \text{ Acres}}{60 \text{ Years}}$ = 1,123 A/Year $\frac{788 \text{ MM}}{60 \text{ Yrs.}}$ = 13.1 MM/Year $\frac{788 \text{ MM}}{67,370 \text{ A}}$ = 11.7 M/Acre

1/ See Empirical Yield Table, Page 54
2/ Actual Volume per Acre from Inventory Data
3/ There is no present Age Class 90

AREA VOLUME CHECK
HARVEST CUT - PURE CONIFERS
80 YR. ROTATION - AREA CUT OF 4,596 ACRES/YR.
SCRIBNER SCALE, LONG LOGS

Present Age	Acres	Years to Cut		Present Volume		Age When Cut	Volume When Cut	
		Per.	Cum.	Per Acre Bd.Ft.	Total MM Bd.Ft.		Per Acre Bd.Ft. 1/	Total MM Bd.Ft.
110+	38,432	8.4	8.4	67,894	2,609	110+	67,894 2/	2,609
100	83,801	18.2	26.6	66,703	5,590	115	74,408	6,235
90	19,987	4.4	31.0	61,398	1,227	120	76,695	1,533
80	63,113	13.7	44.7	57,578	3,634	120	76,695	4,840
70	25,371	5.6	50.3	41,942	1,064	120	76,695	1,946
60	44,588	9.7	60.0	42,073	1,876	115	74,408	3,318
50	6,147	1.3	61.3	31,599	194	110	72,120	443
40	18,447	4.0	65.3	29,329	541	105	69,577	1,283
30	--	--	--	--	--	--	--	--
20	15,378	3.3	68.6	5,737	88	85	58,385	898
10	6,147	1.3	69.9	--	--	80	55,332	340
0	46,237	10.1	80.0	--	--	75	52,024	2,405
Total	367,648							25,850

$\frac{25,850}{80 \text{ Yr.}} = 323.1$ MM/Yr.

$\frac{323.1 \text{ MM}}{4596 \text{ A}} = 70.3$ M/A

1/ From Empirical Yield Table, Page 52
2/ Actual Volume per acre from Inventory Data.

AREA VOLUME SUMMARY CULTURED STANDS, April 18, 1966
PURE CONIFERS
Scribner Scale - Long Logs

1/Cutting Cycle	1	2	3	4	5	6	7	8	9	10
% of TKV Available for I.Cut	54	54	69	71	71+					
A. Present Age	100	110	120	130						
B. Initial Cut(A)	45,253	5,866	6,704	1,676						
C.Initial Cut(MM)	561	71	77	18						
D.Succ.Cut.(A)		45,253	51,119	57,823						
E.Succ.Cut.(MM)		249	294	343						
A.	90	100	110	120	(6.3)					
B.	10,793	1,399	1,599	400	(11.3)					
C.	139	17	19	5						
D.		10,793	12,192	13,791	7,911					
E.		56	67	79	47					
A.	80	90	100	110	120	(8.5)				
B.	34,081	4,418	5,049	1,262		(13.5)				
C.	443	57	63	15						
D.		34,081	38,499	43,548	44,810	28,212				
E.		158	198	240	258	167				
A.	70	80	90	100	110	120	(4.6)			
B.	13,700	1,776	2,030	507			(9.6)			
C.	176	23	26	6						
D.		13,700	15,476	17,506	18,013	18,031	8,632			
E.		57	72	90	99	104	51			
A.	60	70	80	90	100	110	120	(3.7)		
B.	24,078	3,121	3,567	891				(8.7)		
C.	295	40	46	11						
D.		24,078	27,199	30,766	31,657	31,657	31,657	13,464		
E.		87	113	143	163	174	182	80		
A.	50	60	70	80	90	100	110	(4.9)		
B.	3,319	431	491	123				(9.9)		
C.	37	5	6	2						
D.		3,319	3,750	4,241	4,364	4,364	4,364	2,160		
E.		10	14	18	20	22	24	12		
A.	40	50	60	70	80	90	100	110	(2.1)	
B.		11,253	1,475	369					(7.1)	
C.		127	18	5						
D.			11,253	12,728	13,097	13,097	13,097	13,097	3,874	
E.			35	46	54	61	67	72	22	
A.	20	30	40	50	60	70	80	90	(5.1)	
B.				10,918					(10.1)	
C.				123						
D.					10,918	10,918	10,918	10,918	5,514	
E.					34	40	45	51	28	
A.	10	20	30	40	50	60	70	80	(9.2)	
B.					4,364				(14.2)	
C.					49					
D.						4,364	4,364	4,364	2,827	
E.						14	16	18	13	
A.	0	10	20	30	40	50	60	70	80	(5.2)
B. 2/						32,828				(10.2)
C.						370				
D.							32,828	32,828	32,828	16,736
E.							102	119	136	78
A.	-10	0	10	20	30	40	50	60	70	80
B.							26,103			
C.							294			
D.								26,103	26,103	26,103
E.								81	95	108
A.	-20	-10	0	10	20	30	40	50	60	70
B.								26,103		
C.								294		
D.									26,103	26,103
E.									81	95
A.	-30	-20	-10	0	10	20	30	40	50	60
B.									26,103	
C.									294	
D.										26,103
E.										81
A.	-40	-30	-20	-10	0	10	20	30	40	50
B.										26,103
C.										294
Acres	131,224	159,488	180,403	196,549	135,134	143,453	131,963	129,037	123,352	121,148
Vol. (MM)	1,651	957	1,048	1,144	724	952	781	727	669	656
Acres/Yr.	13,122	15,949	18,040	19,655	13,513	14,345	13,196	12,904	12,335	12,115
Vol./Yr. (MM)	165.1	95.7	104.8	114.4	72.4	95.2	78.1	72.7	66.9	65.6
Vol./A/Yr.(M)	12.6	6.0	5.8	5.8	5.4	6.6	5.9	5.6	5.4	5.4

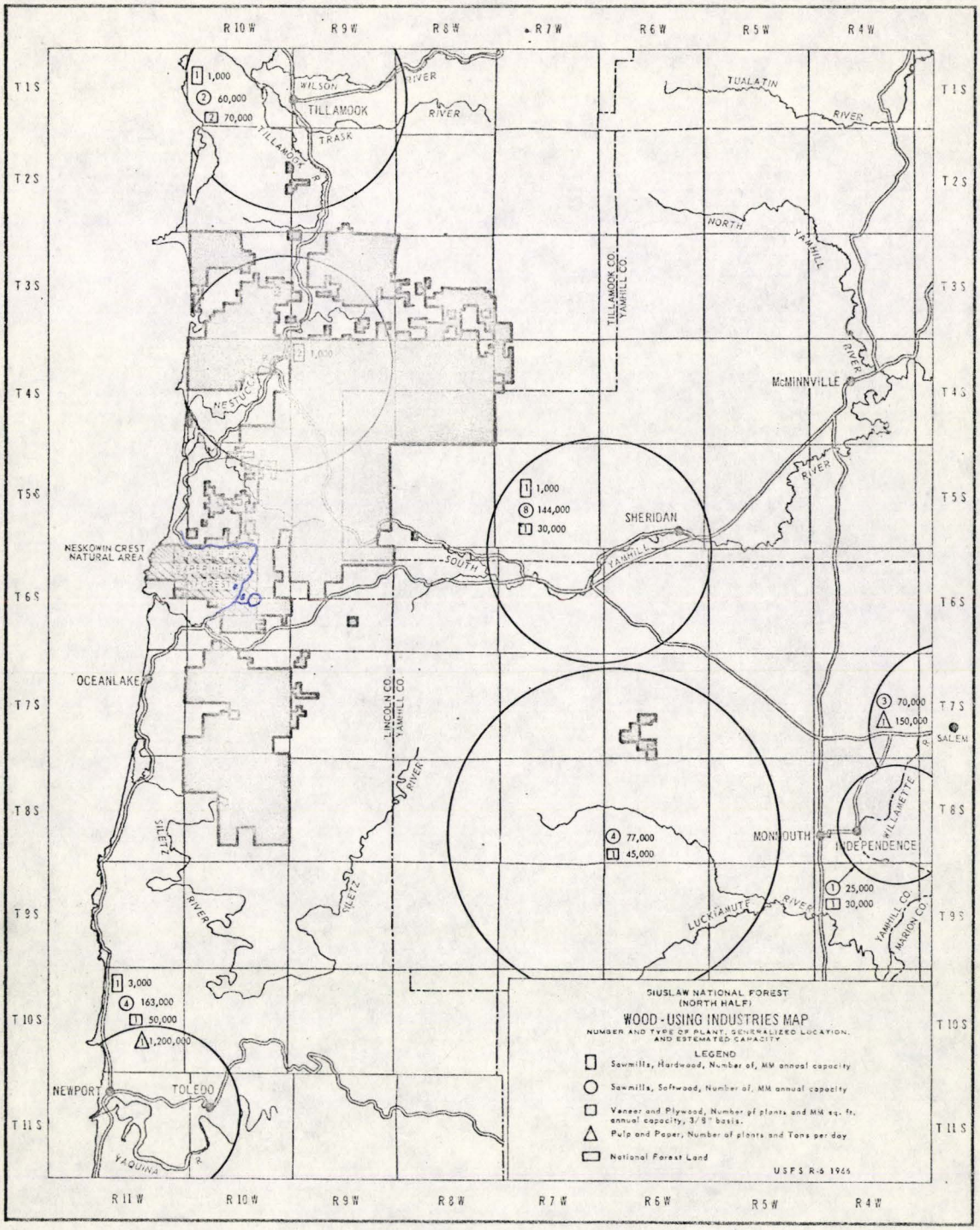
Will be clearcut in 51.3 years
Less 4 full cut.cycles 40.0 years
11.3 years
Less 5-year buffer 5.0 years
Years of I cutting in 6.3 years
5th cycle
Therefore 6.3 yr. x 14,191 = 7,911
11.3 yr.

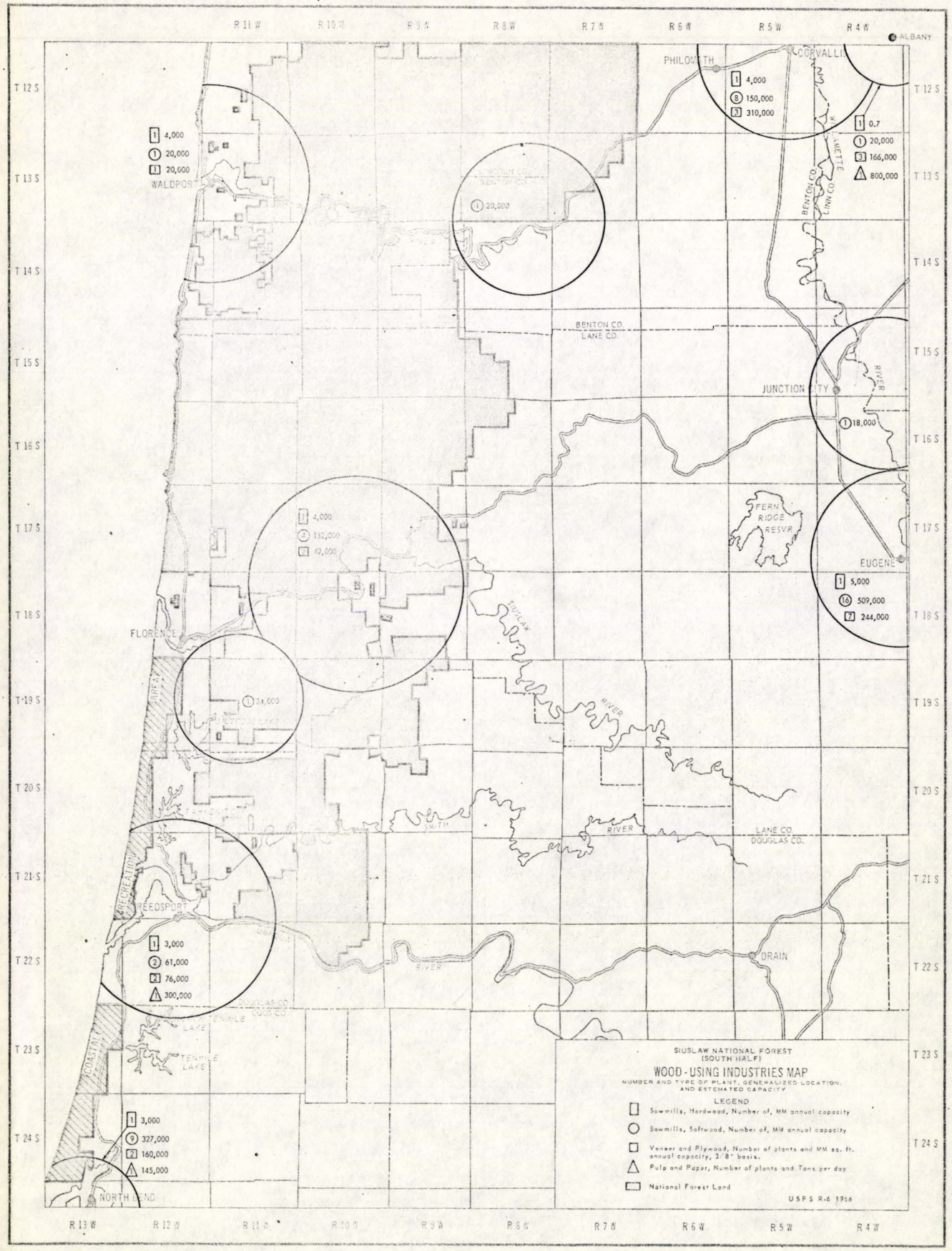
Total Acres: 1,451,751; A/Yr. 14,518; Total Vol.: 9,309 MM; Vol/Yr.: 93.1 MM; Vol/A/Yr. 6.41 M

1/ Cutting Cycle is 10 years.

2/ 71% of zero age class will be available for I cutting, but only 11,504 acres will be clearcut by end of rotation due to cutting -5 and -15 virgin age classes first.

Note: There is no present age class 30.


R10W
R9W
R8W
R7W
R6W
R5W
R4W
T1S
T2S
T3S
T4S
T5S
T6S
T7S
T8S
T9S
T10S
T11S
R11W
1,000
2 60,000
2 70,000
WILSON RIVER
TILLAMOOK
TRASK RIVER
TILLAMOOK
TUALATIN RIVER
NORTH YAMHILL RIVER
TILLAMOOK CO.
YAMHILL CO.
McMINNVILLE
NESTUCCA RIVER
1,000
144,000
30,000
SHERIDAN
SOUTH YAMHILL RIVER
NESKOWIN CREST NATURAL AREA
OCEANLAKE
LINCOLN CO.
YAMHILL CO.
SILETZ RIVER
70,000
150,000
SALEM
77,000
45,000
MONMOUTH
INDEPENDENCE
WILLAMETTE
25,000
30,000
LUCKIAMUTE RIVER
YAMHILL CO.
MARION CO.
3,000
163,000
50,000
1,200,000
NEWPORT
TOLEDO
YAQUINA R.
SIUSLAW NATIONAL FOREST
(NORTH HALF)
WOOD-USING INDUSTRIES MAP
NUMBER AND TYPE OF PLANT, GENERALIZED LOCATION, AND ESTIMATED CAPACITY
LEGEND
Sawmills, Hardwood, Number of, MM annual capacity
Sawmills, Softwood, Number of, MM annual capacity
Veneer and Plywood, Number of plants and MM sq. ft. annual capacity, 3/8" basis.
Pulp and Paper, Number of plants and Tons per day
National Forest Land
USFS R-6 1965


R 11 W
R 10 W
R 9 W
R 8 W
R 7 W
R 6 W
R 5 W
R 4 W
R 13 W
R 12 W
T 12 S
T 13 S
T 14 S
T 15 S
T 16 S
T 17 S
T 18 S
T 19 S
T 20 S
T 21 S
T 22 S
T 23 S
T 24 S
ALBANY
CORVALLIS
PHILOMATH
JUNCTION CITY
EUGENE
FLORENCE
REEDSPORT
WALDPORT
NORTH LEND
DRAIN
FERN RIDGE RESVR.
TENMILE LAKE
SIUSLAW RIVER
SMITH RIVER
BENTON CO.
LANE CO.
LINN CO.
LINCOLN CO.
DOUGLAS CO.
COAST FOREST
1 4,000
1 20,000
1 20,000
1 4,000
8 150,000
3 310,000
1 0.7
1 20,000
3 166,000
800,000
1 20,000
1 4,000
4 132,000
2 42,000
1 24,000
1 18,000
1 5,000
16 509,000
7 244,000
1 3,000
2 61,000
2 76,000
300,000
1 3,000
9 327,000
2 160,000
145,000
SIUSLAW NATIONAL FOREST
(SOUTH HALF)
WOOD-USING INDUSTRIES MAP
NUMBER AND TYPE OF PLANT, GENERALIZED LOCATION, AND ESTIMATED CAPACITY
LEGEND
Sawmills, Hardwood, Number of, MM annual capacity
Sawmills, Softwood, Number of, MM annual capacity
Veneer and Plywood, Number of plants and MM sq. ft. annual capacity, 3/8" basis.
Pulp and Paper, Number of plants and Tons per day
National Forest Land
USFS R-6 1956